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MANUFACTURERS RECORD

A Weekly Newspaper Devoted to the Industrial, Financial, Railroad,
Mining, Contracting, Engineering, Building, and General
Business Interests of the South and Southwest

Vol. 67
No. 1

ESTABLISHED 1882

\$4.00 Per Year
Single Copy 15 Cents

ROME SETS EXAMPLE IN "BUILDING NOW."

Chamber of Commerce,

Rome, Ga., December 29, 1914.

Editor, Manufacturers Record:

The City Council of Rome, at its regular session meeting, December 28th, at the urgent solicitation and recommendation of the Rome Chamber of Commerce, unanimously passed an ordinance calling for an election February 11, 1915, to vote bonds of \$100,000 for municipal improvements. Of this amount, \$75,000, supplemented by \$25,000, proceeds from the sale of the old city hall, will be used for a new city hall and auditorium; \$25,000, supplemented by a similar amount from the County of Floyd, to be used for a general hospital. It is the idea of this organization to get the work started not later than March 1st, 1915.

Also the Board of Roads and Revenues of Floyd County, at its meeting of December 26th, elected J. E. Greiner, of Baltimore, and W. C. Spiker, of Atlanta, as consulting engineers in the construction of three new concrete bridges over the rivers in the City of Rome, to cost approximately \$200,000. The engineers chosen will begin at once to take soundings and measurements preparatory to drawing plans and specifications to be submitted for approval, and it is planned to commence actual work on the bridges by March or April 1st, 1915.

These improvements are being undertaken in line with the position taken by the MANUFACTURERS RECORD of "Build Now," believing that such improvements can be made now more economically than will be possible in the next year or two. These improvements will be made, so far as practicable, with home materials and labor. The aggregate amount to be expended will be in the neighborhood of \$350,000, and from all indications the beginning of this work will be forerunner of a general building activity in this community.

Trusting the information will be of interest to you, I am, Yours very truly,

H. A. WHEELING, *Secretary.*

BALTIMORE, JANUARY 7, 1915

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CLEAN



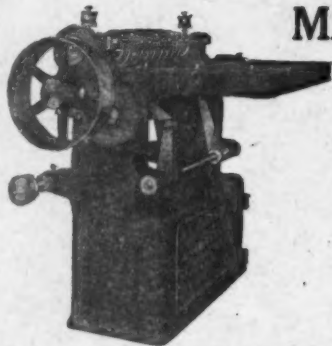
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slits plain or decorated stock, and slits it
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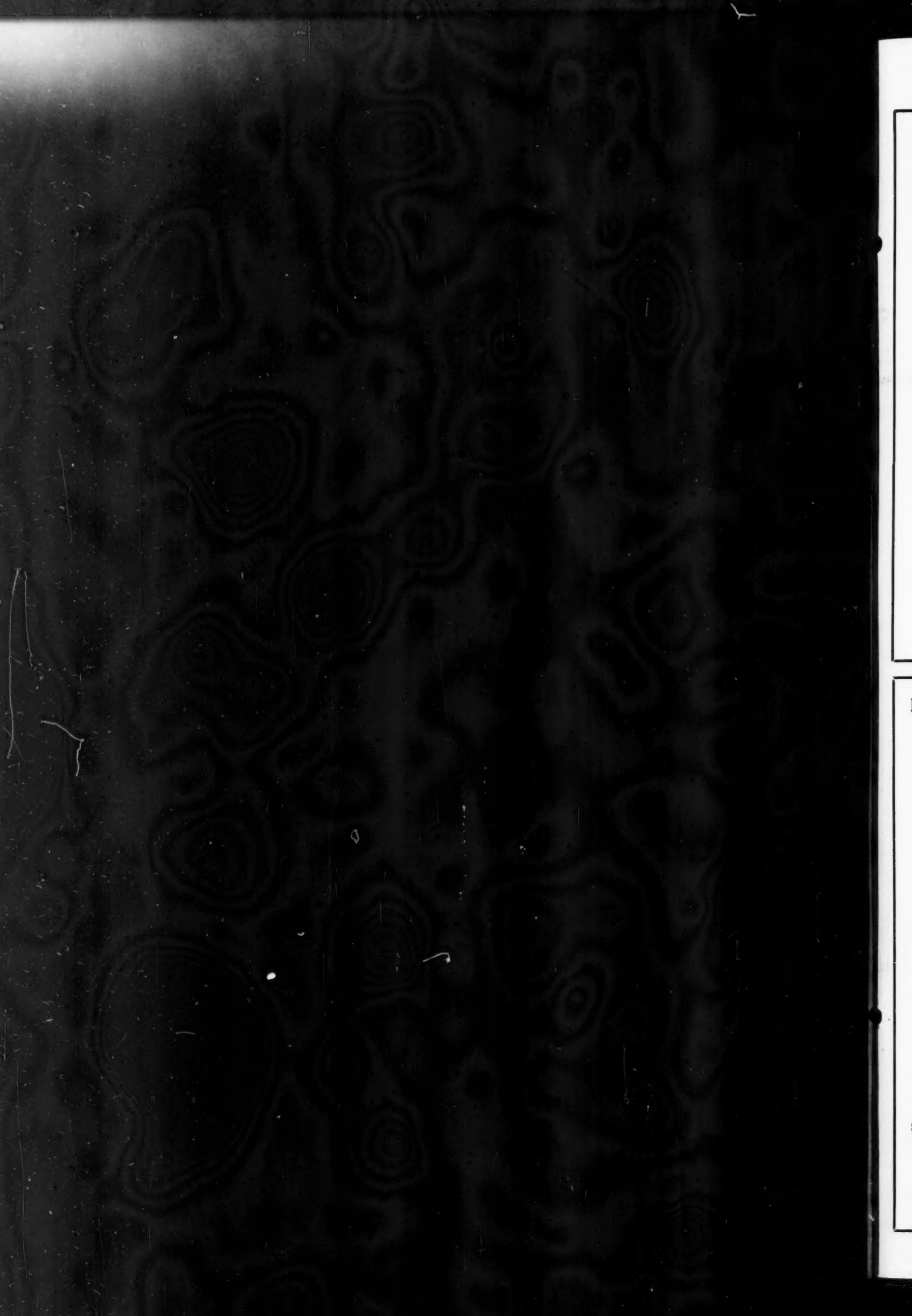
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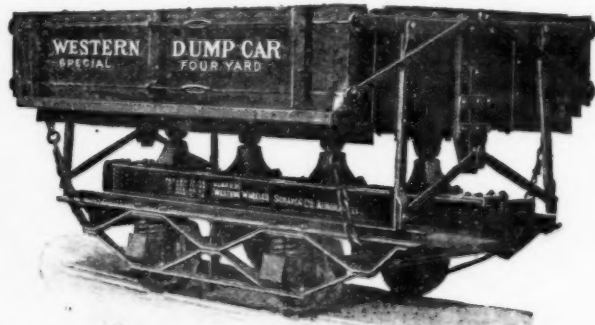
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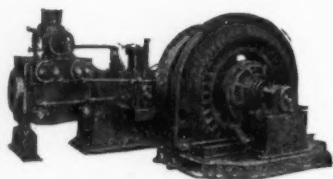
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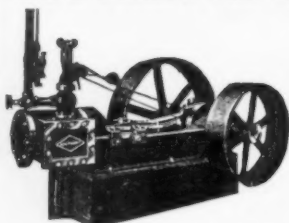
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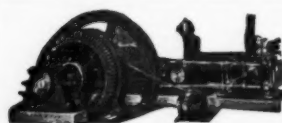
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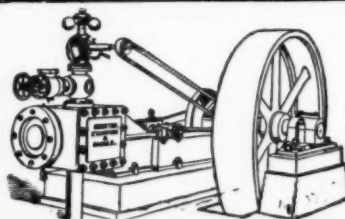
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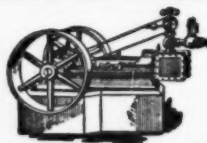


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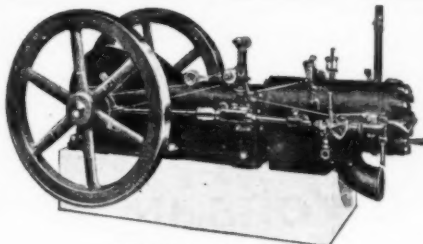
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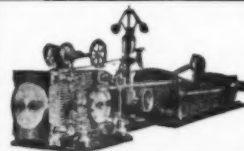
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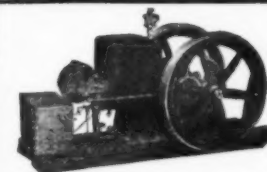
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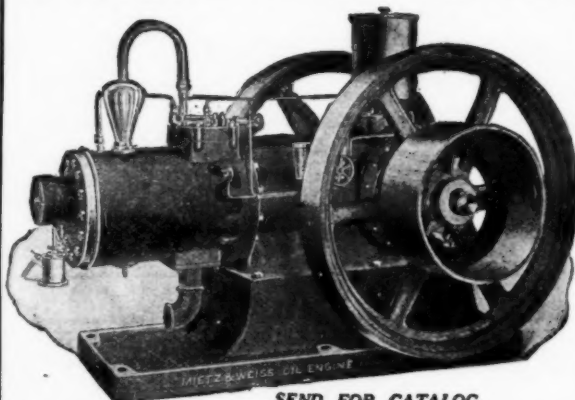
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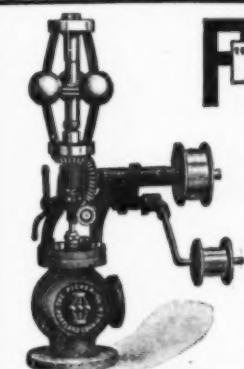
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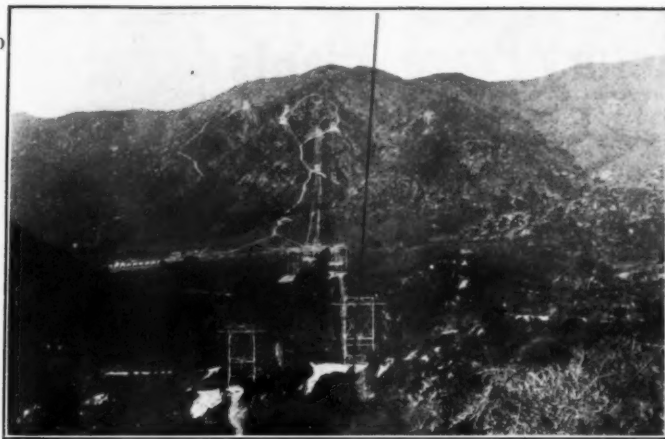
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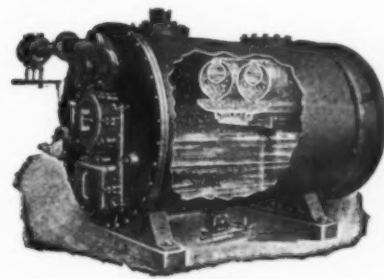
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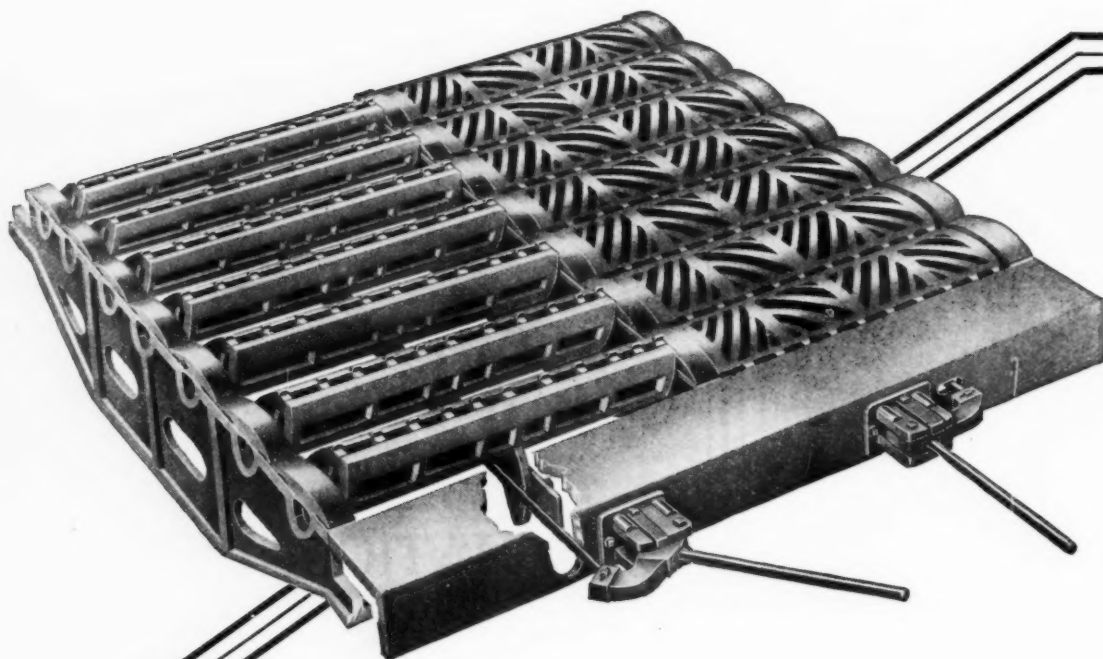
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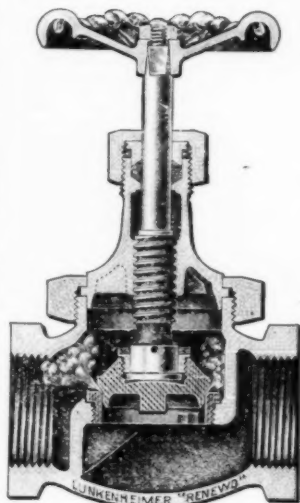
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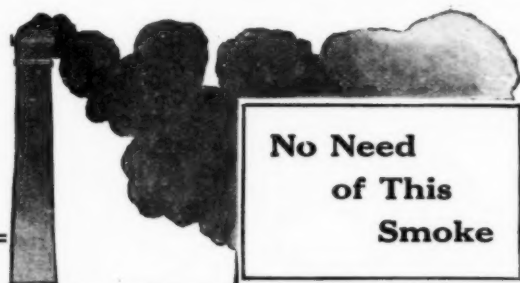
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No Need
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Smoke

THE HUBER HAND STOKER

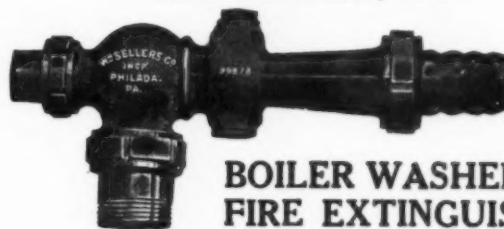
Increases the efficiency, capacity and profits of your plant. Practically solves the smoke problem.

Uses ALL of the coal. Partly burned coal or clinkers cannot mix with fresh coal. No sluicing required. Will burn any kind of coal. Less coal will give more steam and more power.

Write for Huber Hand Stoker Data

HUBER GRATE BAR & STOKING CO. 1114-16 E. Monument Street
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Wm. Sellers & Co., Inc. PHILADELPHIA, PA.



BOILER WASHER and
FIRE EXTINGUISHER

Can be attached to Locomotive.

SELF-ACTING INJECTOR The only injector for Lumber
Mills and Logging Roads

An absolutely accurate record of the amount of water entering your boilers and of the amount of condensed water from engines or turbines may be kept with a

HAMMOND WATER METER

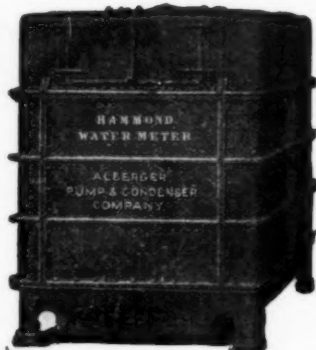
The Hammond Meter will measure any quantity of any liquid at any temperature. It is simple in design and all of the operating mechanism is easily accessible.

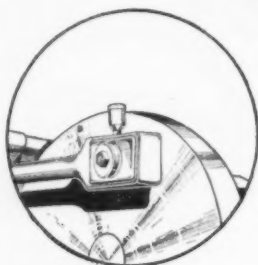
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ALBERGER PUMP & CONDENSER COMPANY

140 Cedar Street, New York

BRANCHES: Chicago Boston St. Louis Pittsburgh San Francisco Atlanta New Orleans





CRANK PIN LUBRICATION

On crank pins Albany Grease is particularly adapted to give perfect results. Here centrifugal force has to be contended with. On high-speed engines and those operating in long continuous runs, it is practically impossible to secure cool crank pins, due to the impossibility of adjusting the feed of lubricant. With Albany Grease in a crank pin spindle cup this difficulty is overcome. We have records of main engines operating 72 hours on one filling of the crank pin with

ALBANY GREASE

In street railway and electric light power plants, where the runs are 12, 16 and 24 hours, the crank pins are kept well lubricated without difficulty with Albany Grease. Use Albany Grease on your crank pins and all other bearings on your engines, motors, pumps, line shafting and all other machinery all the time and secure improved bearing conditions. Why not try Albany Grease on that crank pin of yours or any other bearing in your plant? We'll send you a quantity of Albany Grease, an Albany Cup and our book "Friction" if you'll ask us. Why not write now?

Your Dealer Sells Albany Grease—If Not, Order Direct



ALBANY LUBRICATING CO.

ADAM COOK'S SONS, Props.

708-710 Washington St., NEW YORK

Established 1868



THE OTIS HEATER SHIPPED ON ITS MERITS

Guaranteed to heat your feed water to 200 degrees or more with the proper quantity of exhaust steam. Its brass tubes are all suspended from the top, enabling them to expand and contract with perfect freedom. We guarantee that the tubes will not become loose (as they do in some other types). All heaters are tested at 200 lbs. hydrostatic pressure before shipment.

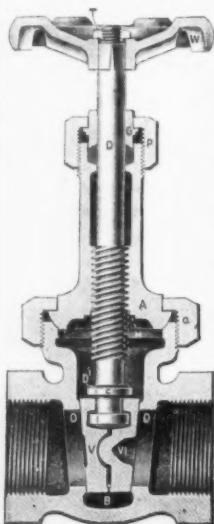
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THEY TAKE
PRESSURE
EITHER WAY

POWELL VALVES

(Especially The "White Star" Valve)



Five Points of Efficiency Combined in the Powell White Star Gate Valves

- ★ 1. Body is strong and rigid, cast of the very best steam metal bronze. Threads on outside of body where steam can't reach them.
- ★ 2. Union bevel ground joint connection between body and bonnet. Red lead or cement unnecessary to make them tight.
- ★ 3. The double disc not a wedge disc, but two discs with ball and socket back smooth working and self-adjusting.
- ★ 4. There are a sufficient number of Acme threads to always keep the stem arm in its position.
- ★ 5. All working parts made to gauge and are interchangeable.

Ask your dealer for Powell Valves or write us.

THE WM POWELL CO.



DEPENDABLE ENGINEERING SPECIALTIES

CINCINNATI, O.

GALENA-SIGNAL OIL CO.

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Leading Railway Lubricating and Illuminating Oils of America

GALENA COACH, ENGINE and CAR OILS, and SIBLEY'S PERFECTION VALVE and SIGNAL OILS are standard the world over

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Guarantee Cost

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Expert Service

GULF REFINING CO.

REFINERS OF

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We make a Specialty of Heavy Oils of Asphaltum Base for Oiling Roads

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Used by the United States Navy and large concerns demanding perfect results.

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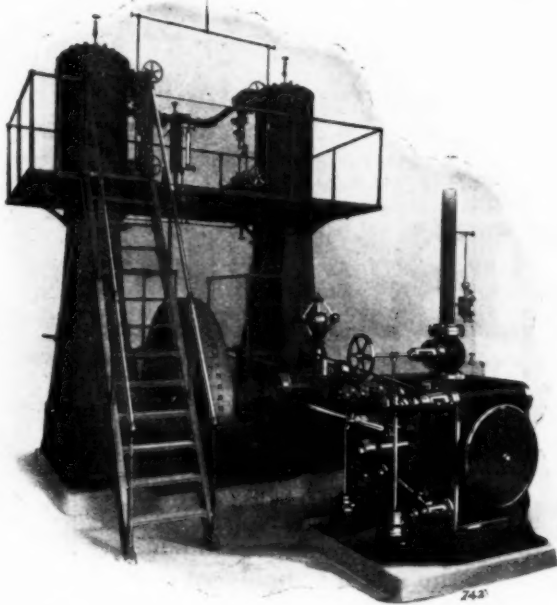
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Refiners of AUTOLINE OIL for All Types of Motors

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York Vertical Single-Acting Machines

have come to be recognized as *standard* everywhere—and for very good reasons.

They are made by expert workmen—
In a factory devoted exclusively to the manufacture of Ice-Making and Refrigerating Machinery.

Have Wrought Steel Galleries, Solid Cranks and Pins of Cast Steel, Nickel Steel Piston Rods and Wrist Pins, Cast Steel Engine Crosshead—

And, mark you—

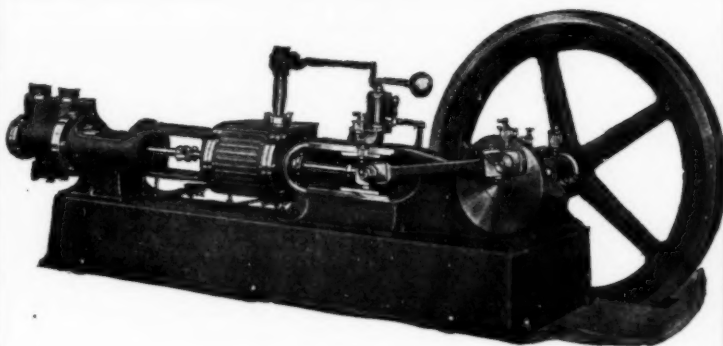
More YORK Machines are sold each year than of any other make. Can you beat it?

Write us today for Information and Prices

YORK MANUFACTURING CO.

(Largest Ice Machine Manufacturers in the World)

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Workmanship a Chief Factor THE ABSORPTION ICE MACHINE

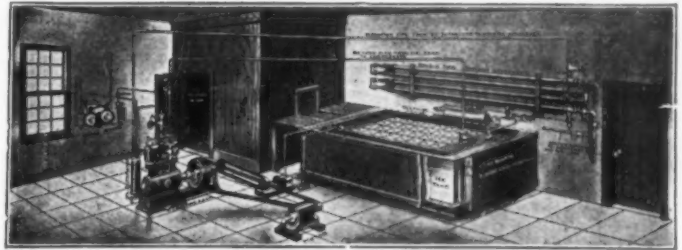
No particular feature is solely the cause of the gratifying success our Absorption Ice Machine has reached, but one of the chief factors is workmanship. It is of the highest class. All parts carefully designed and made accurately to gauge, insuring duplication on very short notice. All valves and fittings are of the very highest standard. We want to hear from prospective ice manufacturers, as well as present manufacturers, who want to raise their profits to the maximum. We have something especially interesting in this connection to tell them. As a preliminary, let us send catalogue.

Machines of any
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Breweries, - - -
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Many of these machines are in operation in the SOUTH in Mills and other Manufacturing Establishments to supply ICE for local requirements. They can be run from line shaft at small expense, and will soon pay first cost. Machines of any capacity for MAKING ICE or for the COOLING OF COLD STORAGE ROOMS, LIQUIDS OR DRINKING WATER. Over 20 years on the market. Illustrated Catalogue and Reference List upon request.

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Our "come-back" business is a big business in itself and positively proves we have given a big value.

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Refrigerating and Ice Making Machines,

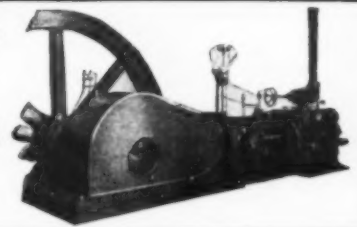
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Ice and Refrigerating
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with our Asbestos coverings. Thousands saving money by using them. We will give you a covering for your particular needs. Contract work a specialty. Let us explain.

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Asbestos Pipe Covering, Packing and Roofing

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Approved by all Insurance Companies
WILL POSITIVELY KEEP YOUR NIGHT WATCHMAN AWAKE

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OF ALL KINDS, FOR ALL PURPOSES
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The International Belting

Milan Cathedral
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DUXBAK drives are a common sight in the power and work rooms of the Italian manufactories which contribute to the world's supply of glass and ceramic ware, flour paste foods, straw hats, olive oil and wines.

One of the European branch houses of Chas. A. Schieren Co., is located at Piazza Castello 3, Milan, Italy, near the Alpine passes.

Duxbak is the belting for anyone, any place, any time, because it sheds dampness, rain, or the sun's scorching rays equally well. Made from the finest packers' steer hides, tanned six months, each separate butt waterproofed and bound together with a cement that laughs alike at water, steam, gas, oils or acid fumes, truly it is the belting for universal use.

Consult us about transmission problems. We are at your service.

Chas. A. Schieren Company
ESTABLISHED 1868

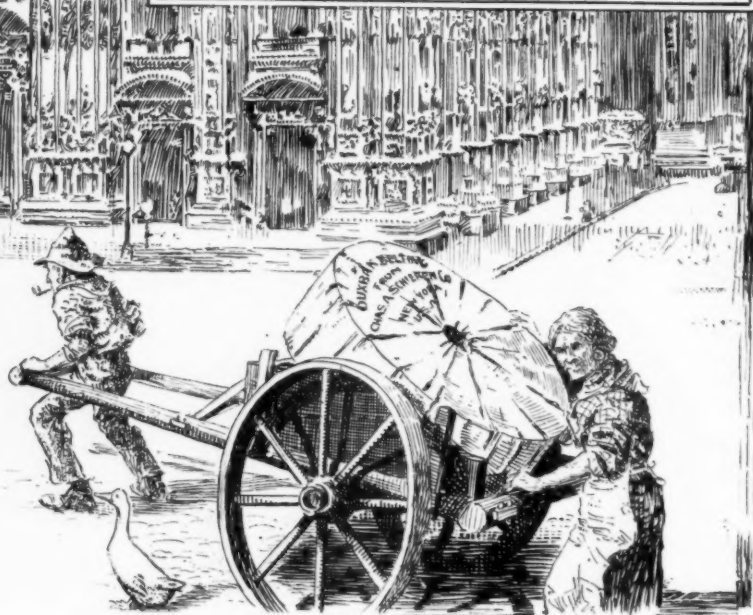
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Reasons Why You Should Use Gandy Stitched Cotton Duck Belting



YOUR choice of a belt depends on two considerations: service, first; and price, second. You are bound to buy where you are sure of getting the greatest amount of Service for the least outlay of money.

On these two considerations, "The Gandy Belt" offers you the following:

Proof of service under the severest conditions of use (dust, dirt, moisture, exposure to acid fumes, etc.) This proof in the form of letters received from satisfied users. Thousands of Gandy Belts are now operating satisfactorily in all lines of industry. Names of users furnished on application.

Price: The initial cost of "The Gandy Belt" is only about $\frac{1}{3}$ that of leather belting and much less than that of rubber belting, while it does the work equally as well.

Whenever you are interested we will send you samples and full information.

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OAK
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FOR

Leather Belting

ACID
WATER
STEAM
PROOF

THE DRUID OAK BELTING COMPANY
(INC.)

BALTIMORE, MD.

The Bailey-Lebby Co. MACHINERY and SUPPLIES



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"GIANT" Seamless and Stitched
RUBBER BELT

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LEVIATHAN BELTING

is 33 years old



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A real reputation represents years of producing and selling goods of the highest quality.

The reputation of LEVIATHAN and ANACONDA belting, known by the user and conceded by competitors, is a live, positive thing founded entirely on the fact that

Each Belt is Made on Honor

and each year has witnessed quality invariably maintained and progress healthily made.

We come to you in 1915 with full acceptance of our responsibility and determination to save you money on each belt we ship you.

This is our obligation. Hold us to it.

MAIN BELTING COMPANY

Manufacturers and Engineers

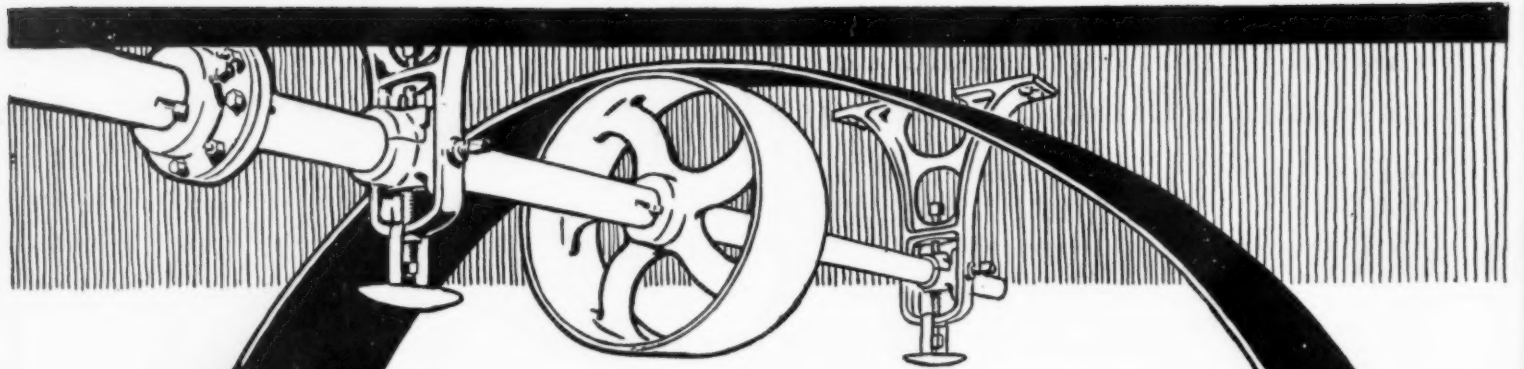
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Why A Time Record But No Belt Record?

You require an accurate time and service record from each employee—why not from your belts, it is just as important.

The "G & K" Belt Record System gives an accurate time and service record of every belt in your plant. It is a dead sure check on just what your belts are doing—it "shows up" every belt that "sojers" on the job.

Do not tolerate inferior or incapable belts, check up the "laggards", use the "G & K" Belt Record System, it is absolutely free. Consult us.

WHAT THE SYSTEM IS

The "G & K" Belt Record System shows at a glance the complete history of each belt in your plant—the maker's name, brand of belt, width, length, purchase date, initial cost, on what machine installed, repair cost; in short, it is the most comprehensive yet simplest system of its kind and adapted to every plant, large or small.

The Graton & Knight Mfg. Co.

Oak Leather Tanners and Belt Makers
Worcester, Mass.

Atlanta	Kansas City	Philadelphia
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Remember that a systematic record of your belts is the only means you have of comparing the results of various belts. We welcome comparative tests they will convince you of the large saving possible by the use of our modern efficient product.

The coupon or your letterhead gets you further particulars by return mail. Write us.

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Gentlemen:

Send me full particulars regarding your Belt Record System. It is understood that this service is gratis.

Name

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- ¶ The up-to-the-minute Engineer,—Manager,—or Manufacturer—should know about money saved,—and increased satisfaction gained by the use of a Rope Drive.
- ¶ What do you want to know about Rope Drives,—and the solving of Transmission troubles?
- ¶ You'll find the answer in the "Columbian Book of Rope Transmission."

¶ Send for your FREE copy,—TODAY.

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Branches: NEW YORK CHICAGO BOSTON



Belt Assurance.

"BALTOBELT"

¶ The Twentieth Century achievement in Leather Belt Making. ¶ A product of honest, old-fashioned oak tanned Leather and skilled workmanship, perfected by many years of careful labor and study. Send for booklet and prices.

BALTIMORE BELTING COMPANY,
Leather Belt Makers, Baltimore, Md., U. S. A.

THE "CHESAPEAKE" BELT PULLS

Transmits more power than any other Canvas Stitched. Fully Guaranteed.
Chesapeake Belting Company Baltimore, Md.



STANDARD ENGINE LATHES

14" to 24" swing

HIGH GRADE TOOLS

With all Modern Improvements

THE GREAVES-KLUMMAN TOOL CO., Cincinnati, Ohio, U. S. A.

Proposals advertised in the Manufacturers Record bring good results.

VITRIFIED GRINDING WHEELS

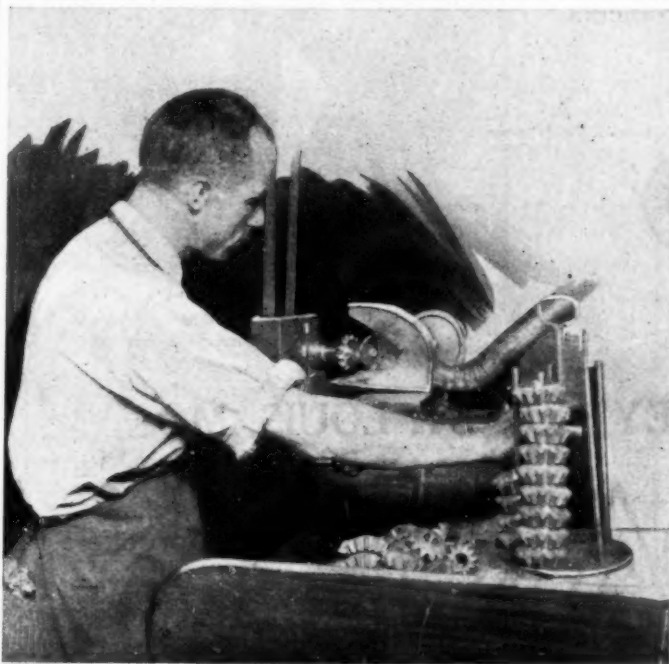
There is a grinding wheel made for the particular class of grinding you have, and by procuring same your grinding troubles will disappear.

We would be pleased to receive full information regarding the class of grinding that you have.

Catalogue will be sent on request.

Vitrified Wheel Co., Westfield, Mass.

Just Any Grinding Wheel Wouldn't Do for This Job



The work is grinding hardened nickel-steel pinions. They had to have *the Right Wheel in the Right Place*.—Just any grinding wheel wouldn't do. They had to have just *the Right Wheel in the Right Place*. The grinding was done dry, so a clean, free, cool-cutting wheel was necessary. The wheel had to hold its shape and last long enough to effect an economy.

THE WHEEL SELECTED FOR THE JOB
WAS AN ALOXITE GRINDING WHEEL

Carborundum Service is solving grinding problems in other plants—it can in yours.

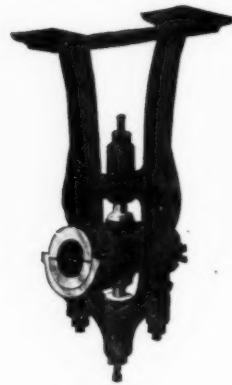
**THE
CARBORUNDUM COMPANY**

NIAGARA FALLS, N. Y.



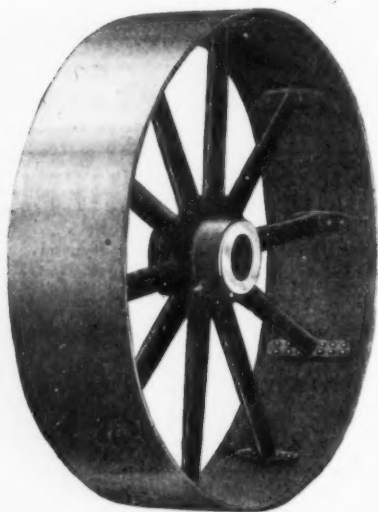
Post Hangers
Adjustable and Rigid

MEDART

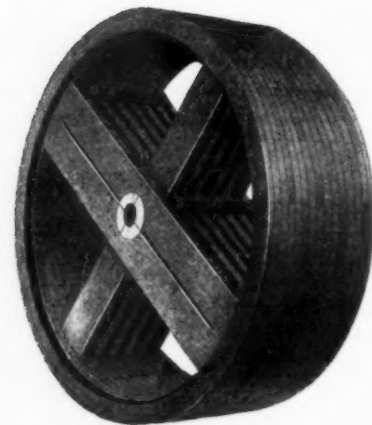


Hangers
Single and Double Brace

There is a
MEDART
product
for every
transmission
need



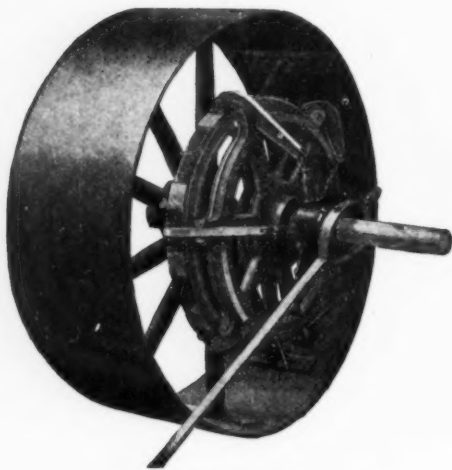
Patent Steel Rim Pulleys
Whole or Split, Single or Double Arm



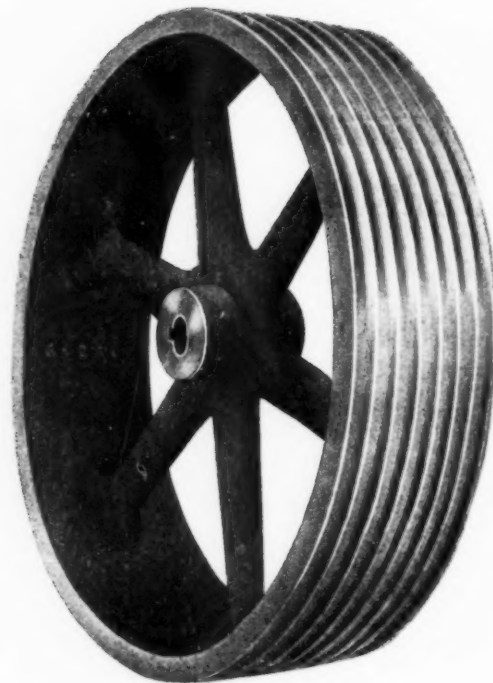
Wood Split Pulleys
From 3" to 96" Diameter

And our engineering
department can fit
the necessary product
to the need accurately
and promptly.

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and discount sheets.



Friction Clutches
All Sizes for Every Requirement



Rope Sheaves
Noiseless, Economical, Effective

MEDART PATENT PULLEY CO., ST. LOUIS, MO.

Cast Iron Pulleys
Shafting

MEDART

Sprockets
Gears

Steel Rim, Wood Pulleys, Hangers, Clutches, Rope Sheaves, Etc.

CRESSON-MORRIS POWER TRANSMISSION MACHINERY



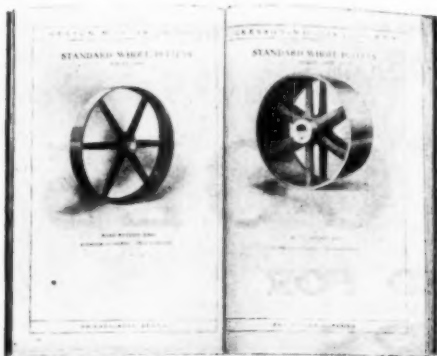
CRESSON-MORRIS HANGERS

All our Philadelphia Pattern Hangers are made double braced and parting, thereby combining great strength and rigidity with remarkable ease of erection.



RING OILING PILLOW BLOCKS

All rigid Ring Oiling Pillow Blocks are above 4-7/16" shaft diameter and are constructed so as to permit removal of bearing parts for cleaning and rebabbiting without moving the shaft out of line.



CAST IRON PULLEYS

We have for many years made a specialty of manufacturing a standard line of cast iron pulleys suitable for general machine shop and mill practice. We are always equipped to furnish pulleys designed to meet the requirements of machinery builders whose work necessitates the use of pulleys having special features as to construction and finish.

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Successors to George V. Cresson Co.

**ENGINEERS—FOUNDERS—MACHINISTS
PHILADELPHIA, PA.**

Starrett Steel Tapes



Our steel tapes are perfect in accuracy and convenience. They are graduated by our special process which does not weaken them at the marks. They are made in various lengths, graduated in convenient units, either English or metric, and may be purchased in steel or leather cases or on handy reels.

Send for catalog 20 EC, showing tapes, inexpensive transits, etc.

Buy Starrett Tools at any good hardware store.

The L. S. Starrett Co., Athol, Mass.
WORLD'S GREATEST TOOL MAKERS

42-336

Dodge Self-Oiling Bearings



Capillary Bearing



Ring Bearing

DODGE Capillary Self-lubricating bearings save a waste of oil, loss of time caused by "shut-downs," and possible accidents to the oiler.

Clean and fill Dodge bearings once or twice a year—your line runs more smoothly and efficiently at \$1.50 per bearing less per year. Dodge bearings are interchangeable in Dodge hanger frames.

"Dodge-Atlanta" can fix you out any time in a hurry.

DODGE MANUFACTURING COMPANY

Mishawaka, Indiana

Atlanta Branch, 28 South Forsyth Street



NO ACCIDENT POSSIBLE

Over 1500 people are yearly killed or crippled for life in the United States alone by projecting SET SCREWS. Don't wait till you have an accident. Remove all dangerous projecting SET SCREWS from your shafting and machinery, and replace them with ALLEN SAFETY SET SCREWS.

All sizes from 1/4" to 1" carried in stock in U. S. Standard and V thread.

Send for circular No. 16 and free sample screw.

ALLEN MFG. CO., Inc., Hartford, Conn., U. S. A.
CANADIAN FACTORY: ST. JOHNS, P. Q., CANADA



WILL YOU DO IT?

Will you send for our 1915 complete Catalog of dependable Friction Clutches that have for years been solving power and clutch problems for other manufacturers?

MOORE & WHITE FRICTION CLUTCHES transmit every ounce of power at all times. Slipping and sticking are unknown to them.

INSTANT POWER OR RELEASE

THE MOORE & WHITE CO., Philadelphia, U. S. A.



GILBERT WOOD SPLIT PULLEYS

MANUFACTURED BY

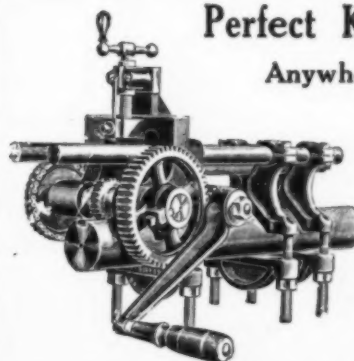
SAGINAW MANUFACTURING CO.

Saginaw, Michigan, U. S. A.

New York Branch, 88 Warren St. Chicago Branch, 105-109 N. Canal St.
Sales Agencies in all the Principal Cities.

Perfect Key Seats in Shafting

Anywhere with this machine.



The Burr Portable Key Seater

Is indispensable for the repair shop, can be carried anywhere, slipped over heavy shafting or spindles, has capacity for key seats up to 6-inch diameter, and will mill a key seat 12 1/2 inches long without resetting.

This tool can be used in almost any position and in the most cramped places. It is rapid in operation, cuts without jar or chatter and produces accurate work. Made in two sizes. No. 1, as shown, \$40.00 net, complete with cutters.

Send for Circular.

JOHN T. BURR & SON
435 Kent Avenue BROOKLYN, N. Y.

DIXON'S SOLID BELT DRESSING



You'll get more work out of a well-fed belt than a starved belt. Starvation kills more belts than hard work.

Feed your belts, while they're working, with Dixon's Solid Belt Dressing—handy little sticks to rub on a running belt and impart to it the "food" elements that it loses under hard work.

You'll have a soft, pliable belt that clings to its pulley—a quiet belt—a clean belt—a belt that works to the limit.

And you'll save belting and power.

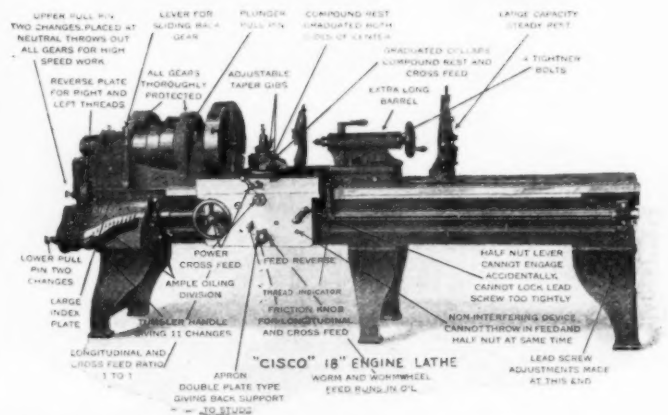
Let us send you booklet No. 80 on "The Proper Care of Belts."

Made in JERSEY CITY, N. J., by the
JOSEPH DIXON CRUCIBLE CO.

Established 1827

CISCO LATHES

14" 16" 18"



SEMI-STEEL Beds giving as near
Permanent Alignment as possible

Heavy and Durable

Powerful and Strong

EFFICIENT

ACCURATE

**The BEST Lathe Ever Built at the Price
THE LATHE WITH THE PULL**

The Price Is Moderate

The Machine Is Good

**The Cincinnati Iron & Steel Co.
Cincinnati, U. S. A.**

IRON STEEL MACHINERY

BUILT FOR SERVICE

WHILE IMPORTANT DISCOVERIES MAY BE MADE ALMOST
IN A MOMENT, IT TAKES TIME TO DEVELOP THE MAJORITY
OF THEM TO A POINT WHERE THEY ARE OF DISTINCT
VALUE TO ANY GREAT NUMBER OF PEOPLE.

"MORSE" TOOLS

**HAVE BEEN DEVELOPED FOR
FIFTY YEARS**

UNTIL THEY HAVE REACHED A DEGREE OF EXCELLENCE
THAT HAS MADE THEM ALMOST INDISPENSABLE TO SKILLED
MACHINISTS THE WORLD OVER. WHY NOT STOCK THEM
AND BE PREPARED TO FILL ORDERS ON THE SPOT?

DRILLS, REAMERS, TAPS, CUTTERS, ETC.

MORSE TWIST DRILL AND MACHINE CO.
NEW BEDFORD, MASSACHUSETTS

"TUNE THE OLD COW DIED ON"

THERE WAS A MAN WHO HAD A COW
AND HE HAD NAUGHT TO GIVE HER.
SO HE TOOK HIS PIPE AND PLAYED HER A TUNE,
"CONSIDER, GOOD COW, CONSIDER."

We rather expect that just now, for the first time in your life, you know what was "the tune the old cow died on." Yet you have been telling folks all these years when you whistled that it was "the tune the old cow died on." And when the Squedunk Sheet Iron Band struck up, you said they were playing "the tune the old cow died on."

"CONSIDER, GOOD COW, CONSIDER."

That was the tune. Of course, the old cow died. Cows as well as humans must have HAY, BRAN and PASTURE.

And many a "Piper" is playing this same empty tune to his "Old Cow" of a business.

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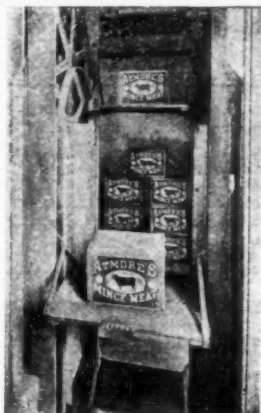
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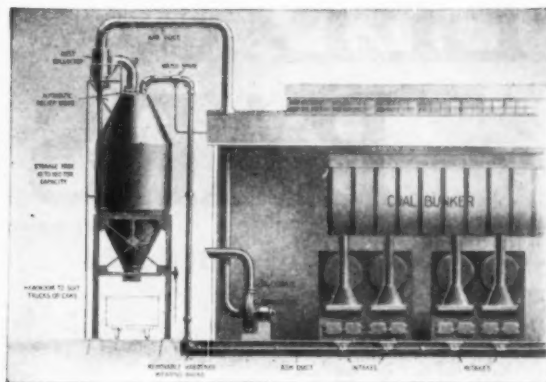
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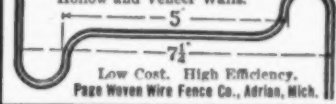
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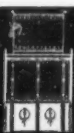
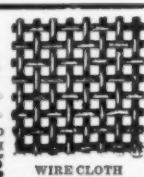
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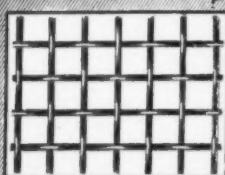
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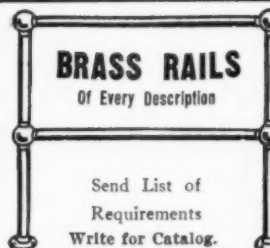
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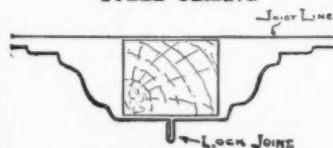
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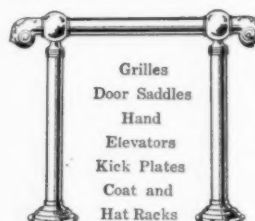
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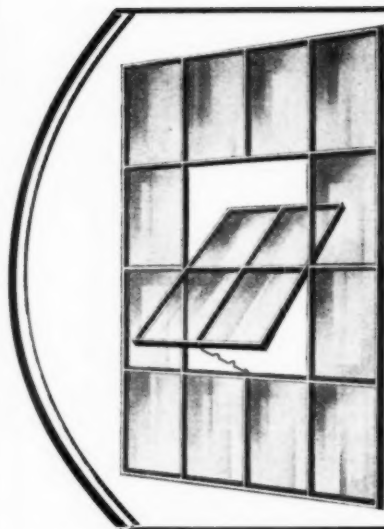
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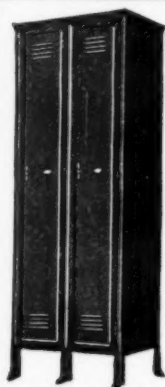
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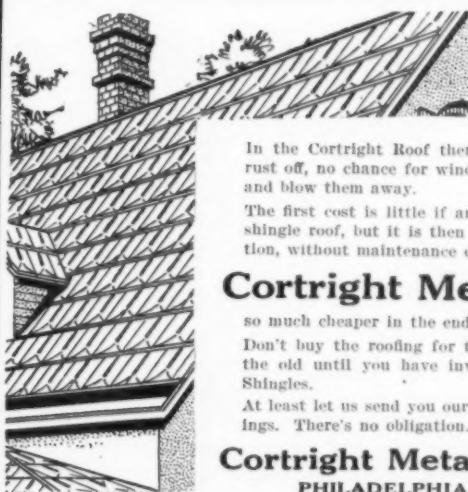
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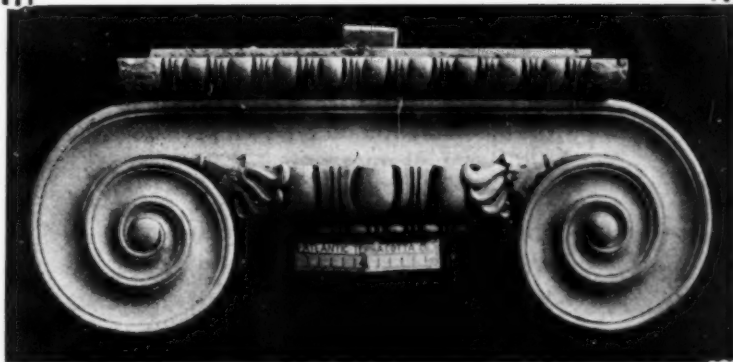
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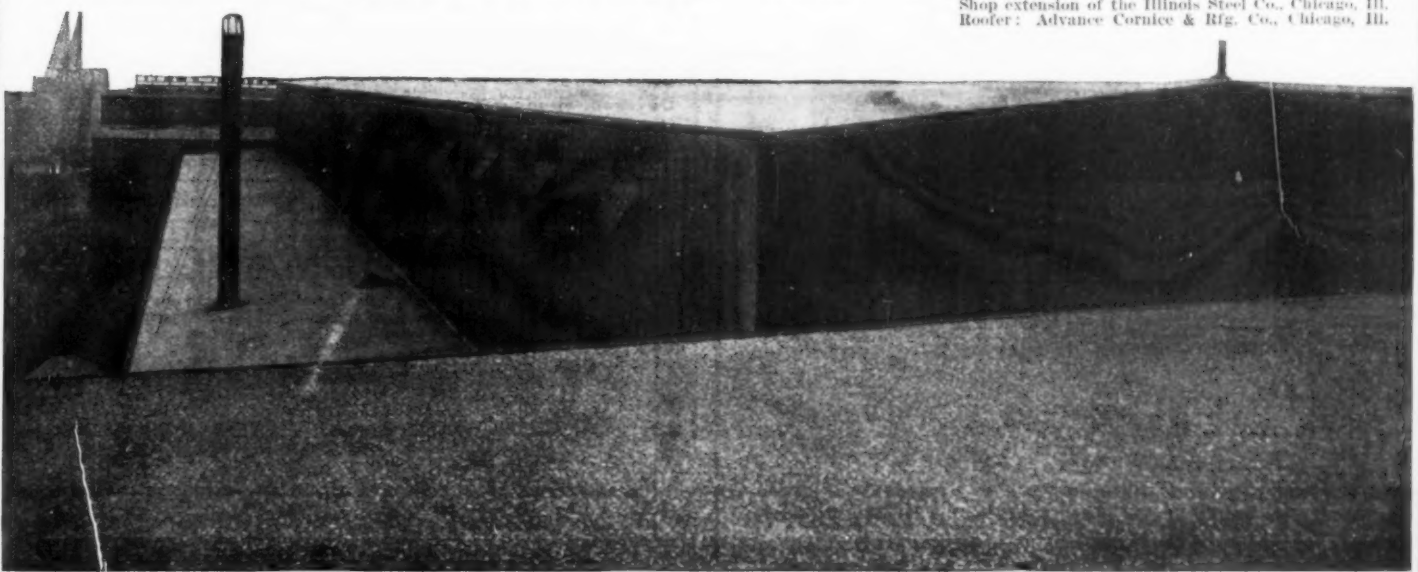
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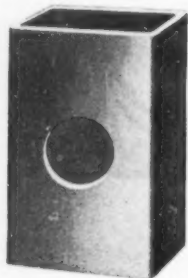
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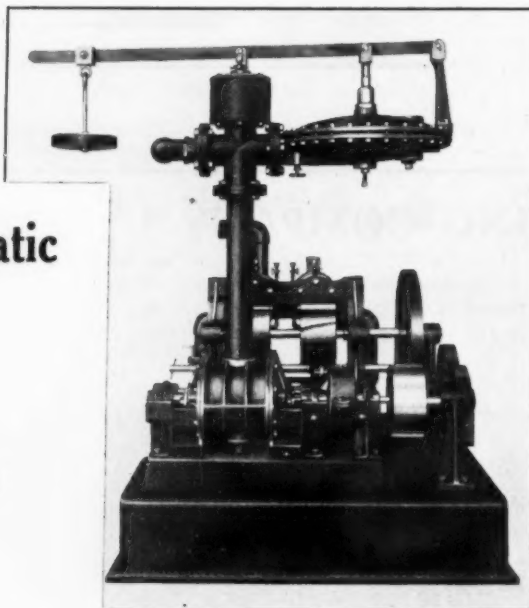
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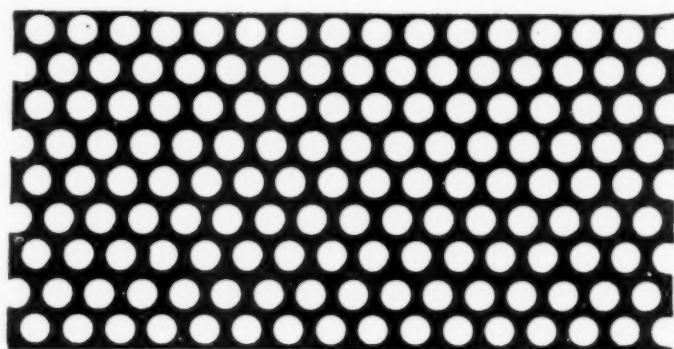
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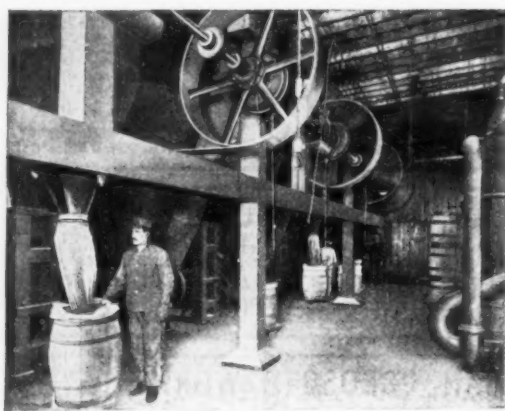
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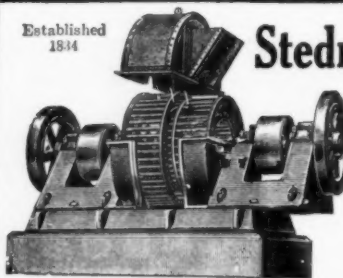
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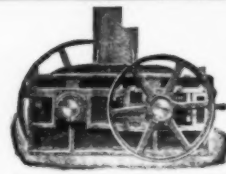
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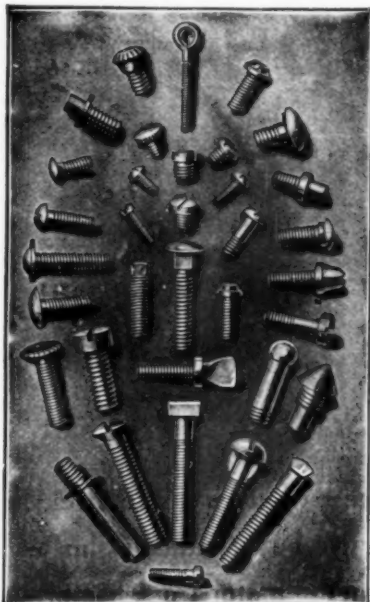
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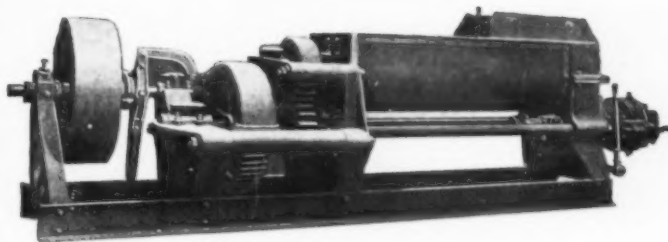
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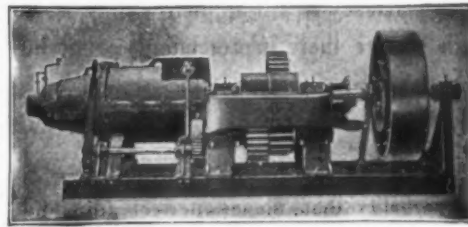
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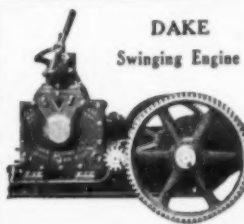


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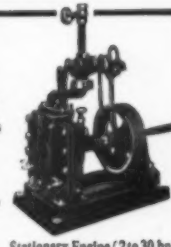
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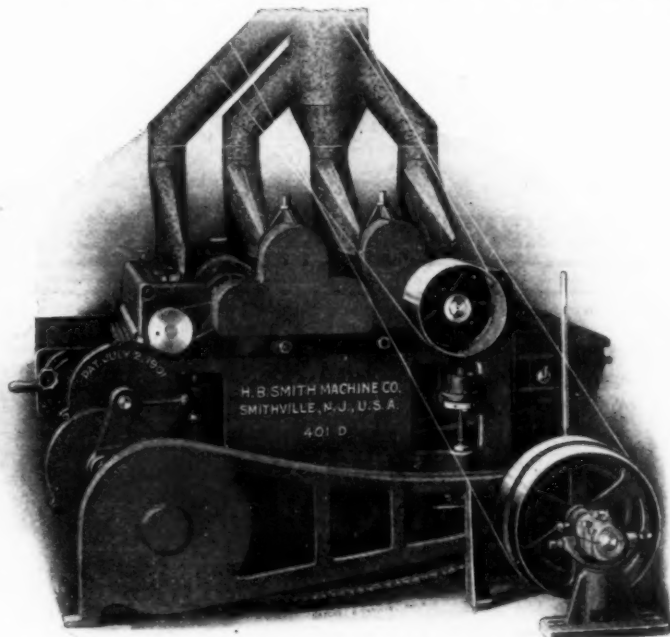
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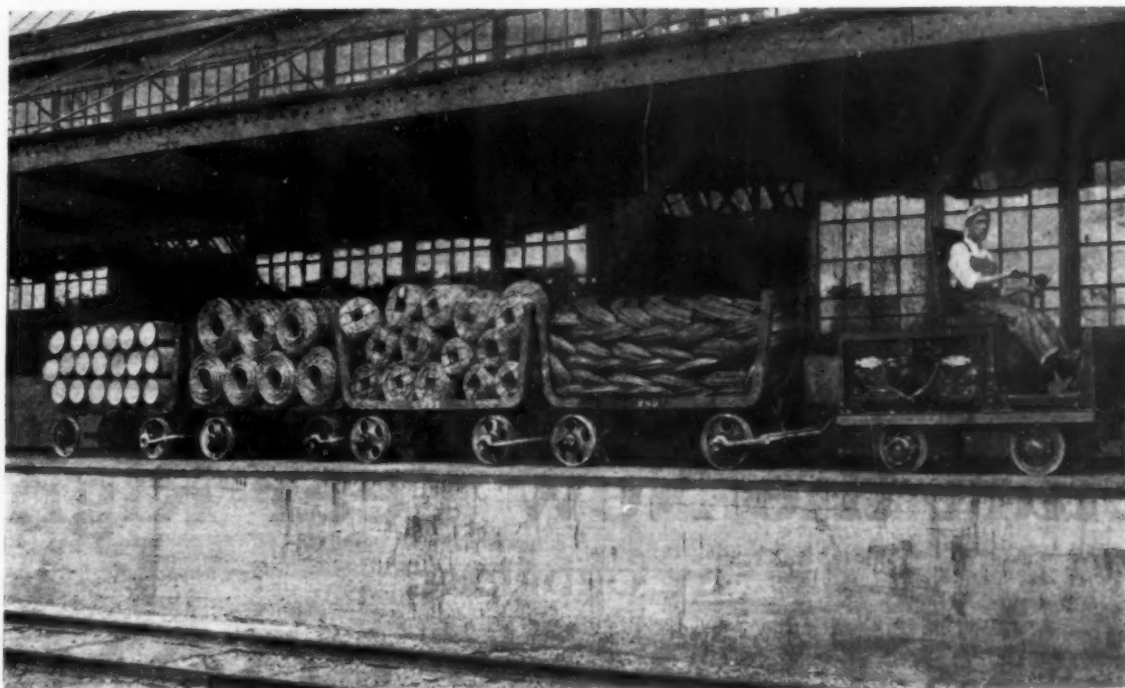
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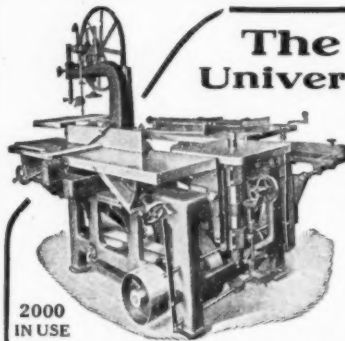
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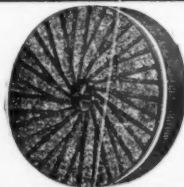
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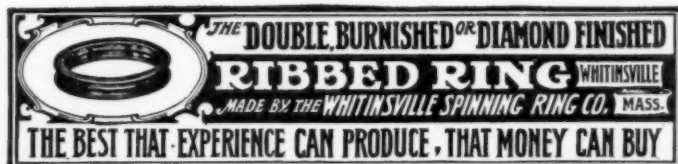
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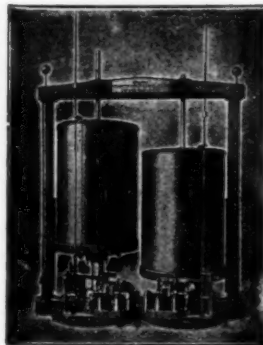


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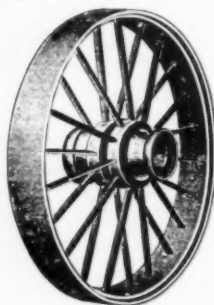
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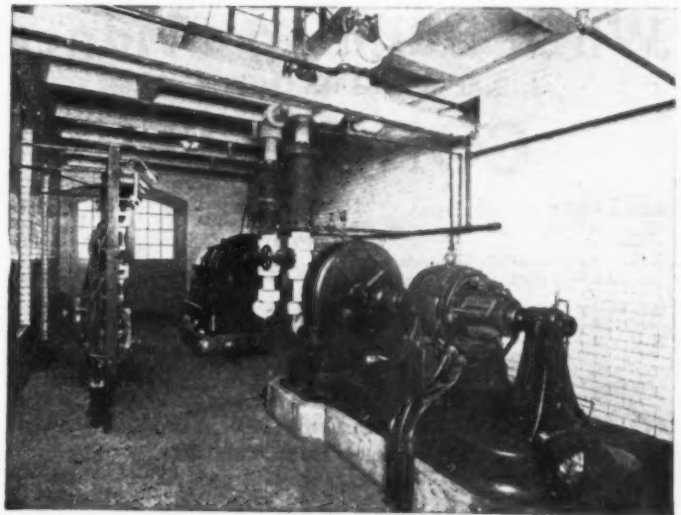
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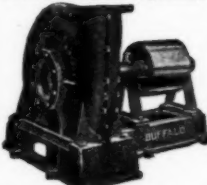
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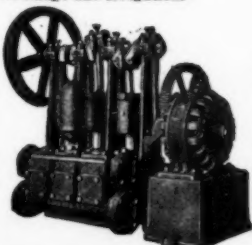
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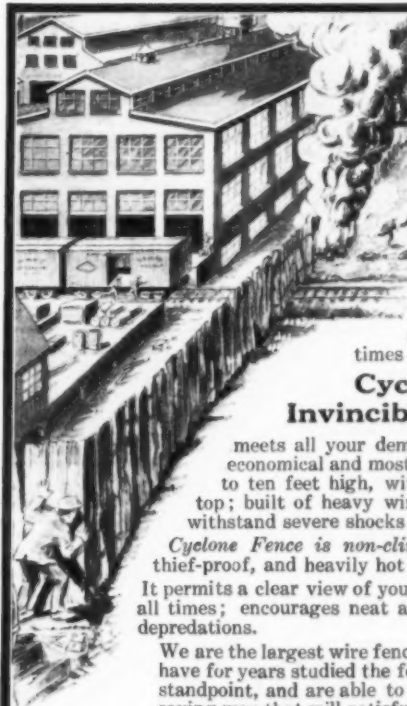
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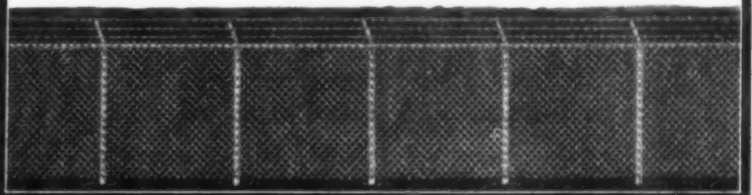
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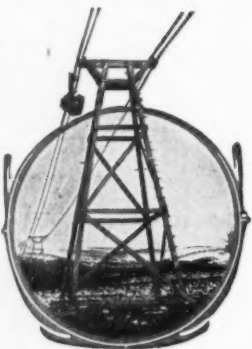
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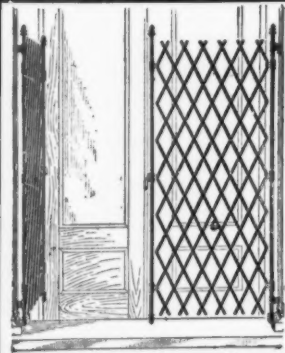
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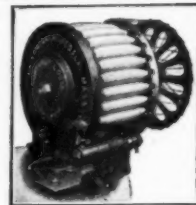
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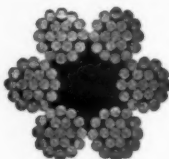
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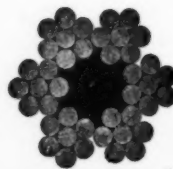


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RICHMOND DIVIDENDS.

EIGHTEEN financial institutions and two industrial corporations of Richmond, Va., have just announced dividends aggregating \$553,167.50. Of that amount \$301,767.50 will be paid by the local banks, the largest aggregate dividends that have ever been paid for a like period in Richmond. The financial institutions of Richmond are noted for their progressiveness and aggressiveness, and the gratifying dividend showing is a logical result of such a policy.

A SOUTHERN GOLD MINE.

GOLD mines of the United States produced last year to the value of \$92,823,500. Every ounce of gold taken from these mines means exhaustion of natural wealth to just that extent. There is a limit to the supply of gold in the world. The South has a source of wealth already producing to a greater value annually than the production of all the gold mines of the country and capable of almost inconceivable expansion. This source of wealth is its trucking lands. Their intrinsic value is suggested by results already obtained.

The average acre value in the South of cotton, with its seed, ranges from \$20 to \$30. In 1913, in which year the cotton crop, with its seed, brought the greatest return, the average value per acre was something more than \$28. Last year 19,500 acres of land in the truck-growing district around Charleston, S. C., produced to the value of \$2,517,500, or an average of \$129 per acre, four times the average for cotton, according to the report of Commissioner of Agriculture E. J. Watson of South Carolina. The range by crops was \$125 an acre for sweet potatoes; \$120 an acre for cabbages, cucumbers and peas; \$109 an acre for Irish potatoes; \$100 an acre for beets, carrots, turnips and lettuce; \$85 an acre for string beans, and \$700 an acre for cabbage plants sold as such. This truck-growing industry in the neighborhood of Charleston is a development of the past 25 or 30 years, a phase of the evolution of the South as the great market garden of the country. The evolution has happened as yet only in spots, and its results in money amount annually to about \$100,000,000, an average of about \$1 per each inhabitant of the United States. But in the stretch of country along the Atlantic and Gulf coasts from the Chesapeake basin to the Rio Grande Valley and extending for a couple of hundred miles or more into the interior are soils peculiarly adaptable to truck growing and capable of producing fruits and vegetables in sufficient quantity to meet the needs of many times the present population of this country. There are, according to experts of the United States Government, nearly 7,000,000 acres of land of these soils in the South already known and representing pos-

sibly a total of 30,000,000 acres. Hardly 20 per cent. of this acreage is at present devoted to agriculture and a much smaller acreage is devoted to truck growing. What is being accomplished in the Charleston region and at many other points is an indication of the enormous possibilities in this industry and the proof that in these trucking soils the South possesses a "gold mine" worth far more than all the actual gold mines of the world, because it may be maintained as an exhaustless source of wealth.

SOLVING THE COTTON-HANDLING PROBLEM.

IN publishing on other pages of this issue the full details of the plan for cotton warehouses and terminal at New Orleans the MANUFACTURERS RECORD feels that it is contributing something toward the solution of the problem of handling cotton on a business basis. It is estimated that this project of a complete modern cotton-handling plant will cost approximately \$3,500,000, of which \$3,000,000 will represent the proceeds of bonds issued and to be expended under the auspices of the Board of Port Commissioners of New Orleans and the remainder an expenditure by the Public Belt Railroad for a large receiving and sorting yard. The Board of Port Commissioners selected some time ago Ford, Bacon & Davis, engineers, of New Orleans, New York and San Francisco, to design and superintend the construction of the cotton warehouses and terminal, and the first contract for \$994,646 was awarded about two weeks ago to the Jefferson Construction Co. of New Orleans. The general plan, including some new devices for expediting the handling of cotton, looks to a concentration of activities and consequent saving of expense in receiving, storing and shipping cotton, and it is expected that the completion of the plant will add to the importance of New Orleans as a cotton market and as an exporter. The definite and authoritative description of the plant, now published for the first time, will doubtless be carefully studied and have a decided influence toward the betterment of cotton handling throughout the South.

SUGGESTIONS WELCOMED.

A PROMINENT firm of contractors in the South, in a letter making a suggestion to the MANUFACTURERS RECORD as to some information that would be very valuable to them, apologized, as they said, in undertaking "to dictate to you and your associates as to how the MANUFACTURERS RECORD should be conducted."

We greatly regret that any reader of the MANUFACTURERS RECORD should feel any hesitation in suggesting how the MANUFACTURERS RECORD should be conducted. It may not be possible for us to comply with the suggestions that are made, but we welcome any criticism or suggestion that our readers can make as to the news that may be to them most interesting and as to details which may make the MANUFACTURERS RECORD of more service in their business.

Instead of resenting criticisms or suggestions, we greatly welcome them. If a mistake is found in anything that we publish, we shall be glad to have our attention called to it, and if any reader, whether advertiser or subscriber, can point out any way in which the MANUFACTURERS RECORD can better serve the interests of its readers and advance the welfare of the South, he will be rendering us a favor if he will write us fully on the matter.

No one need for a moment hesitate to keep on

making suggestions. The editors of the MANUFACTURERS RECORD and its readers taken together know very much more about the things that are of value to the readers than the editors can possibly know if they do not have this co-operation from their readers. On all public questions the MANUFACTURERS RECORD has its own views and it expresses them through its editorial columns, but it does not for a moment suppose that every reader will agree with the position it takes on every question. As we welcome criticisms and suggestions in regard to news matters and for our Construction Department, so we welcome criticisms or expressions of opinion in regard to the policies advocated or opposed in our editorial columns.

BUSINESS PRINCIPLES IN LEGISLATION.

PRESIDENT FRED LARKINS of the American Lumber & Export Co., Birmingham, Ala., in a letter to the MANUFACTURERS RECORD, makes a suggestion which is worthy of elaboration. He writes:

I must take this occasion to commend your policy in securing and publishing letters from business men throughout the country treating different subjects of current interest, and hope these letters will be read from time to time by a majority of our public men. Some years ago when the interstate commerce law was being discussed in Congress I happened to meet a Senator from Missouri—I believe it was Senator Stone—on the train. Finding out my business, he began plying me with questions pertaining to the subject, and cross-examined me for about two hours. In the end he thanked me most heartily for the information I gave him, and stated frankly that Congressmen and Senators had the time of their lives in getting first-hand, reliable information from business men. They were pestered to death with politicians who were always ready and willing to force their ideas on our Representatives, but this alleged information amounted to no more or less than political arguments in furtherance of some pet scheme or "ax-grinding" proposition in which the aforesaid politicians were personally interested. On the other hand, the plain, every-day business men, abhorring politics as usually practiced, stayed in the background and said nothing, though it was their ideas that the honest and conscientious Representative or Senator most sought and needed. That is one great trouble with our political situation, and it naturally results in the ideas of the cheap professional politicians prevailing too often in connection with important legislation. We all need to wake up and take a hand. Along these lines, therefore, you are performing a great service to the country at large.

It was a novel point of view that Mr. Larkins was given by the gentleman from Missouri. But it touches the position which the MANUFACTURERS RECORD has long maintained, that business men, using the term in its broadest sense, can make it possible for legislation, National, State and local, to be dominated by business men instead of by politicians.

The reason why politicians dominate, even though they may be outnumbered in legislative bodies, is that they make politics their business and are engaged in that business in all of their waking hours, 365 days a year. Politics is the only business they know, the only business they care to know. Politics means to them holding jobs themselves at the expense of the taxpayers of the country or being in a position to determine who shall hold such jobs, with all the privileges and perquisites pertaining to that position. When they happen to be members of legislative bodies, their main aim is so to conduct themselves as to assure their re-election as Congressmen, Assemblymen or Councilmen, or their promotion to public jobs having more pay. Many of them, too many of them, are graduates of so-called law schools. But most of the legislation they accomplish or attempt demonstrates that, aside from parrot-like proficiency in the matter of antique legal phraseology, they are practically ignorant of the principles of the law and of the fundamental constitutional rules that should prevail in the framing of laws. In an effort

to justify their occupation of positions of lawmakers they feel obliged to make laws of some kind or another. Consequently the country is flooded with statutes and ordinances, some of them reflecting intense emotionalism and thus fastening upon the books enactments of a special nature for which there was already provision in general law, some of them conflicting with existing statutes and thereby adding to the confusion in the administration of the law, and some of them unenforceable, but promulgated under the vicious impression that legislation should be educative and that morality can be lawed into the individual. The great curse in the dominance of the politician in lawmaking is the fact that in any form of the Government such legislation is likely to be framed to meet the demand of this or that class among the people instead of the requirements for the greatest good of the greatest number.

Business men are, after all, able to change this situation, business men comprehending the great body of citizens living, directly or indirectly, for the country instead of on the country, manufacturers, bankers, merchants, farmers, lawyers and other professional men, wage-payers and wage-earners.

Too frequently "business movements" in politics have come after the fact which could have been prevented by legitimate action before the election. Too frequently the "business" candidate for public office has been an individual successful in his own business, but lacking the gumption or the courage to apply business principles to the business of the public and rounding out his term of office without recovering from the weakening influence of the appeal to his personal ambition that induced him to become a candidate for office. Too frequently "business" protests against the politicians come from quarters where neglect of political duties is the rule rather than the exception. Too frequently "business" has sought to promote perfectly legitimate ends by ill-considered means, and thereby has made itself a victim for all time of political blackmailing. Too frequently "business" of one kind or another has been inspired by its special-class instincts and selfishness. In all these manifestations it has lost sight of the principle that real self-government implies a willingness to sacrifice something of the individual for the benefit of the mass and a determination to neglect no public duty required.

There is no call for radical changes in the machinery of Government, either at the top or at the bottom. Nothing has developed in American life making necessary departures from the fundamentals devised by the wise men of a century ago, and any such departure is likely to intensify the evil which it seeks to combat. But there is a call, and an urgent call, for a change in the general character of the lawmakers evolved in the working of the machinery of Government. Whether that change shall be made depends absolutely upon the action of the business men of the country. It will not do for them to create class business organizations temporarily for one campaign or in the interest of a particular candidate. They must organize in many directions and by various means a public sentiment that will bar incompetency from lawmaking bodies, that will impress upon lawmakers chosen under the new regime that their most profitable occupation for a number of years should be the repeal of thousands of statutes and ordinances rather than the making of new ones, and that well-tested, long-standing fundamental law properly administered will still suffice. This reformation will mean the elimination from the scheme of Government, National, State and municipal, of divers and sundry commissions or bureaus which are virtually an acknowledgment by lawmakers of their own unfitness for their jobs and the restoration into productive occupations of the steadily increasing horde of holders of political jobs, with the consequent saving of millions of dollars now wasted upon uncalled-for activities of Government. This campaign in behalf of business principles in lawmaking can be furthered, and furthered only, by the application of business men to their political conduct of the principles that bring them success in their individual business.

DO IT NOW.

IN giving particulars, published elsewhere, regarding municipal and county work to be undertaken at Rome, Ga., to the extent of about \$350,000, Mr. H. A. Wheeling, secretary of the Chamber of Commerce of Rome, says:

These improvements are being undertaken in line with position taken by the MANUFACTURERS RECORD of "build now," believing that such improvements can be made now more economically than would be possible in the next year or two.

"Build now" and "Do public work now" should be the slogans throughout the South and, indeed, throughout the country. The recent editorials in the MANUFACTURERS RECORD under these headings commanded wide attention not only in the South, but in other sections. The action of the people of Rome, and of Floyd county, in which Rome is located, and the announcement from Wilmington, published elsewhere, that, following the same advice, Wilmington, N. C., is preparing to make municipal improvements, are indications of the influence of this campaign inaugurated by the MANUFACTURERS RECORD. The time is propitious for doing public work now, as well as for building operations, by all who plan to build any time in the near future and who are financially able to undertake the work now.

There is a great advantage at the present time in doing all work of this kind, both by individuals and by communities, for at present thousands of people are out of employment, building material is lower than it has been for years, and it is, therefore, possible to do all work of this kind to better advantage and at a lower cost than it has been for many years or is likely to be whenever prosperity returns to the country.

In addition to the saving in work thus done, employment would in this way be given to many of the people now seeking employment in vain.

Every official in public life in the South ought to take an active interest in investigating the feasibility of taking up immediately all construction work that can possibly be done to advantage. Every man who expects to build a home or to do any other construction work within the next year or two, and who is financially able to do it now, ought to do it now, for his own good as well as for the good of others.

Every man who holds back work that he could afford to have done at present merely out of general timidity or unwillingness to go ahead is injuring the country. Every piece of municipal or county work that is delayed by reason of inactivity on the part of municipal or county officials is injuring the whole community. Railroads and many business organizations, as well as individuals, are not in a position to do much construction work at present, but counties, cities, States and the National Government can provide money for work of this kind, as well as many private individuals, and now is the time when those who can do such work ought to do it, and "do it now." Every day's delay is a disadvantage to the country. Every piece of work put under construction at present is a help to the country.

"PLEASE GIVE US \$4 A YEAR."

FROM one of the leading business organizations in the South the MANUFACTURERS RECORD has received a letter which says:

This organization does not subscribe for any periodical, but we have an exchange table upon which are displayed all the trade papers that are sent us complimentary. Our association is composed of the leading manufacturers in the city, and these papers are open not only to their inspection, but to the public as well.

I have explained this before to your people, requesting that we be placed on your exchange list for a complimentary copy, but for some reason this courtesy has up to the present time been denied us.

The most excellent organization from which this letter has been received represents many of the manufacturers, many of whom are men of large wealth, in one of the most prosperous and progressive cities of the South. Nevertheless, as shown by this letter, this organization is asking the newspapers to make

them a present, whereas every member of this organization would resent it if the newspapers asked them to make a present of their products.

This letter indicates the false basis on which a great many people undertake to deal with newspapers. Possibly some newspapers are responsible for it. This letter indicates that the good people who manage this organization either look upon the newspaper as a philanthropic undertaking, amply able and glad to make their organization an object of its charity, or else they regard newspapers as lacking in ordinary business methods which must exist to make profitable any manufacturing or industrial business.

The day when newspapers were given away with the hope that some individual might perchance read the copies thus charitably donated has long since passed, or, if it has not, it ought to have long since passed away. It is to be regretted that any legitimate newspaper should have so little appreciation of its own value and of the ordinary methods of doing business, which should prevail in newspaper work as in all other things, as to be willing to send complimentary copies to commercial or trade organizations merely to curry favor or in the hope that somebody may read these charity copies and perchance learn in this way a little about the publication.

With the kindest feelings to all commercial organizations, especially those in the South and West, the MANUFACTURERS RECORD is entirely unable to see why it should be willing to make them objects of its charity. They are not beggars in purse, and certainly they do not desire to be in spirit. If the MANUFACTURERS RECORD is of any value to them, it is worth its subscription price. If it is not worth its subscription price, then it is not worth the space on their reading tables. It is to be regretted that there are any reputable trade or commercial organizations in the South, or anywhere else, that are willing to put themselves in the position of asking newspapers to regard them as objects of charity and contribute the cost of the publication to their support.

The MANUFACTURERS RECORD has on many an occasion, at an aggregate cost of hundreds of dollars, sent special correspondents to the city from which this quoted communication comes for the express purpose of gathering for publication news about the progress and prospects of that city. It numbers among its friends many of the foremost business men of that community, but it can only regret that one of the leading organizations of that city should take the position that it will not subscribe to any publication, however valuable it may be to its members, but that it will ask these newspapers to make it a present. This is a false basis on which to deal. It shows a wholly mistaken idea of what newspapers are, or ought to be, and from the MANUFACTURERS RECORD point of view very greatly lowers the self-respect which every newspaper should have for its own work, and places every publisher who gives away his paper in a position of saying that it is of so little value that he is glad to have somebody accept it and give it a place on a reading table. The spirit is one which ought not to prevail in the South as regards any publication. Nor should any self-respecting publication be willing to be put in that position by encouraging such a spirit on the part of business organizations.

WILMINGTON FOLLOWING THE POLICY OF DOING PUBLIC WORK NOW.

THOS. D. MEARES, Clerk and Treasurer of Wilmington, N. C., writing to the MANUFACTURERS RECORD, says:

The city of Wilmington is now doing street improvement to the extent of \$50,000, for which contracts have already been let. I think the management realized the necessity of doing as much work under existing conditions as possible, and we are, therefore, in line with the recommendations made in your paper.

The example of Wilmington should be followed by every other community in the South where municipal improvements or road work can be undertaken if these improvements are of a character that they must be done within the next year or two.

RESCUING WEALTH FROM TRASH HEAPS

JACKSONVILLE, FLA., is becoming interested in the possibility in the establishment of a plant in that city for the rescue from trash heaps of valuable material in discarded cans. The Metropolis of that city estimates that 25,000,000 cans of food are used yearly in Jacksonville and its vicinity, and it suggests that, instead of throwing away the empty cans, disposal of them be made profitably, as is done in other cities. There are processes by which the solder material and some of the tin are recovered from the metal of the cans and the rest of the material is converted into sash weights and elevator weights. The Metropolis article presents no definite figures upon which may be based an estimate as to whether the old tin-can output of Jacksonville and its vicinity is sufficient to justify the establishment of a disposal plant similar to those operating in other cities. But the suggestion is worth considering from all practical standpoints, if for no other reason, because it is an expression of the rapidly-growing movement in this country for the economic utilization of what has long passed as waste in industrial activities.

AS VIEWED BY DANISH CONSUL.

T. SOEGAARD, Danish consul at New Orleans, in thanking the MANUFACTURERS RECORD for information given as to manufacturers with whom he desires to correspond, adds:

I have taken the MANUFACTURERS RECORD for several years and intend to continue a subscriber. I would say that I strongly sympathize with your endeavor to make the resources of the South known in this country and abroad.

Mr. Soegaard is but voicing the sentiment which comes to us from thousands of other people throughout the South.

The Time to Do Public Work Is Now.

Mayor H. M. Jackson of Paragould, Ark., writes to the MANUFACTURERS RECORD:

"I have read with much interest and in part, at least, with approval your editorial captioned 'Do Public Work Now.' The suggestion that permanent improvements in municipal, county and State building may be done more cheaply now while there is a vast army of unemployed than at other seasons when labor demands are more general is certainly one that is worthy serious thought, and wherever practicable it should be put into operation.

"This is a city of 8000 inhabitants. During the past three years it has had a remarkable growth. Last summer and fall more than \$200,000 were expended in public improvements. Five miles of bitulithic and bitu-stone street paving are now being finished. A new water district has been formed and the contract let for the installation of the mains, standpipe and fireplugs, the total cost to be \$25,000, but we have been unable to proceed with the work because we could not dispose of the bonds. Some legal complications also served to delay the beginning of the work. But these are now out of the way. If we could get a good bond sale we would probably start this work at once and would thus give several hundred laborers employment. Our bond sale was originally advertised for July 31, but the declarations of war then flying back and forth between European countries apparently frightened all prospective bidders away.

"However, as one who is deeply interested in the problem of the unemployed as well as in municipal improvements, I wish to heartily endorse your very sound and sensible editorial."

To Secure Northern Farmers.

James E. Plew, 327 La Salle street, Chicago, in a letter to the MANUFACTURERS RECORD, referring to the fact that he has purchased 10,000 acres of land in Florida, states that the tract is about 12 to 15 miles from Pensacola, and that he expects to sell to Northern farmers, who will improve principally with Satsuma orange and pecan groves.

Engineering Feats in Building Lincoln Memorial

By A. SYLVESTER EDMONDS.

On February 9, 1911, when Congress created the Lincoln Memorial Commission, it placed upon that body of men tasks the accomplishment of which has called forth feats of architectural and engineering skill of in Potomac Park, a few hundred feet from the Potomac River and on the line between the Capitol and Washington Monument, produced, about 5000 feet west of the monument. It is near the spot on which will rest



SINKING STEEL TUBING FOR SUBFOUNDATION OF LINCOLN MEMORIAL.



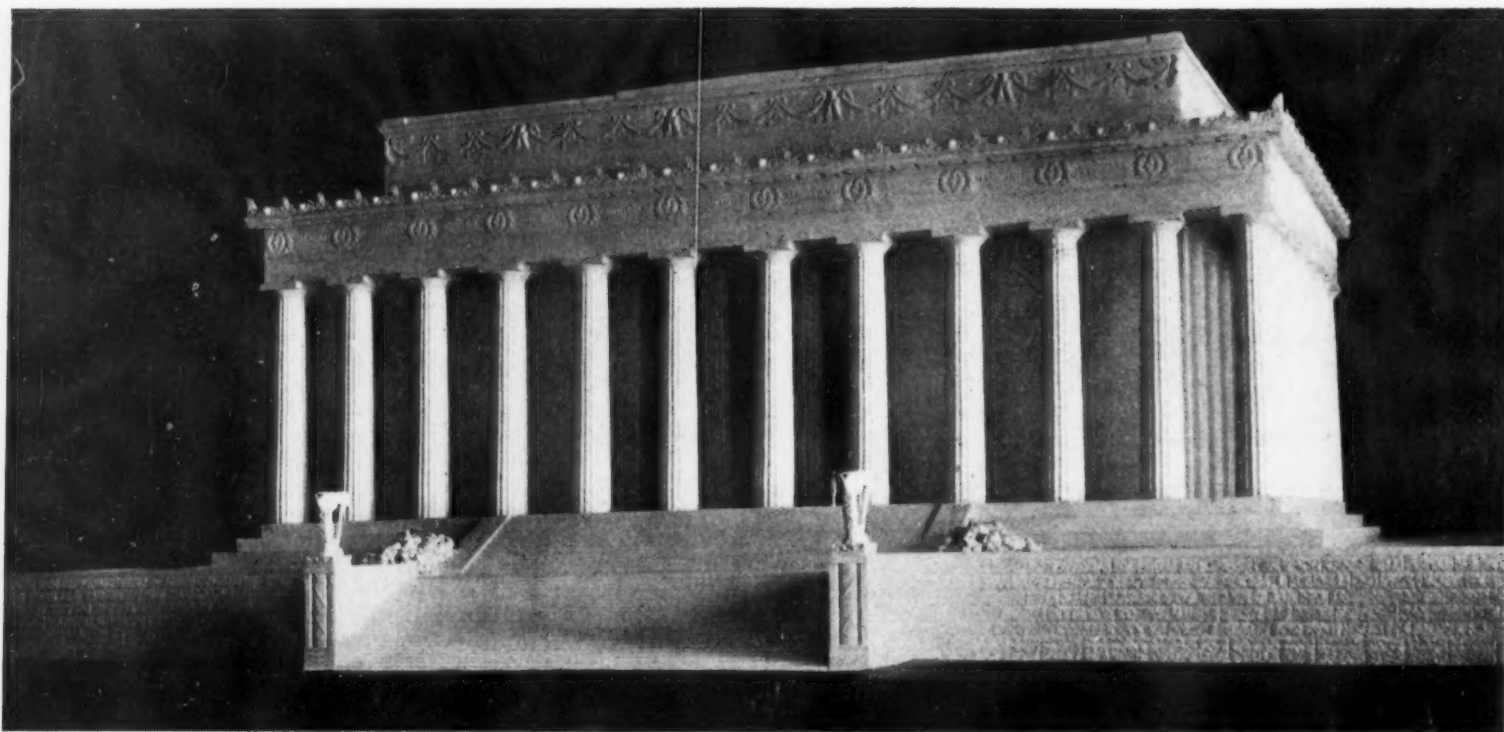
REINFORCED CONCRETE PIERS FOR LINCOLN MEMORIAL FOUNDATION.

note. William H. Taft, then President of the United States, was made chairman of the commission; Col. Wm. W. Harts, United States Army, executive and disbursing officer; F. F. Gillen, consulting engineer; Capt. James A. O'Connor, United States Engineer, chief inspector, and John F. Bethune, chief clerk. From a basis of competitive drawings Henry Bacon, 101 Park avenue, New York, was awarded commission as architect and designing engineer.

Congress chose as location for the memorial a spot

the Washington end of the Lincoln Highway bridge to span the Potomac River at this point.

Up to and in the early part of the latter half of the nineteenth century the waters of the Potomac flowed at a navigable depth where the Lincoln Memorial is now being constructed. With a shifting of the river's course, sediment was deposited there in heavy quantity, so the water became gradually shallower, until that part of the river bed which is now Potomac Park became a marsh. A retaining wall was built between the



MODEL OF LINCOLN MEMORIAL IN COURSE OF CONSTRUCTION AT WASHINGTON.

marshy ground and the river channel. The channel was deepened and the marsh raised above water level by pumping earth from the river bottom, mostly fine mud, onto the marsh within the seawall. This formation left soft ground, utterly unable to support a heavy structure. At an average depth of about 50 feet there is a solid bed of extremely hard rock. Covering this is a blanket of rotten or soft rock about two feet in thickness. Such, in brief, is the nature of the land on which the Lincoln Memorial will stand.

In order to secure a firm anchorage it was necessary that the foundation should rest on bedrock. The foundation plan as proposed by Mr. Bacon and carried out in the construction is a new departure in building foundations. It is, however, a method often used in bridge building. Steel tubing five-eighths inch thick, from 3 feet 6 inches to 4 feet 2 inches in diameter, in 20-foot lengths, was set where the concrete piers were to be. These steel tubes were forced into the earth by weighting them with as much as 40 tons of concrete blocks to a single tube. Owing to the uniform quality and softness of the ground, the tubing sank slowly and evenly, care being taken that it was kept constantly in exact plumb. As the top of one joint came near the ground the weights would be removed, another joint bolted to it and the operation repeated. In some instances, where the earth was rather dry, difficulty was experienced in sinking the tubing. On such occasion there was driven into the ground alongside the tubing a small pipe, sharp-pointed, with side perforations near the end. Through this pipe water was forced at high pressure. The dirt was thus softened by wetting, and the tubing proceeded down until it reached the soft rock overlying the hard bedrock. Upon striking soft rock the tube could be sunk no farther by gravity pressure. The weights were removed and the dirt cleaned out by means of a basket filled by hand by a workman in the tube. When all dirt was disposed of the layer of rotten rock immediately under it was picked through, the hole being made large enough to allow the tube to sink, so that it rested on the solid bedrock. The hole was then carried two feet deeper by blasting that depth into the bedrock itself. Then the hole was ready for the actual construction work to begin, the tube remaining in position resting on the bedrock. A cage of reinforcing rods was inserted, reaching below the tube two feet, to the bottom of the bedrock excavation. This cage consisted of 12 1½-inch cold-twisted longitudinal rods placed at regular intervals in a circle three inches within the tube parallel with the tube, held by a quarter-inch encircling steel wire. Concrete was poured and tamped in. In the space 76x64 feet, over which the memorial proper will rise, there are 120 of these piers, forming the subfoundation. The piers are spread at top and

tied together by reinforced concrete grillage one foot thick.

The foundation proper stands on the sub-foundation, and rises 45 feet above the present level of the earth. It is of more usual construction. In it are 88 piers, varying in size from 7 feet 10 inches square under the outer walls and main entrance, to 5 feet by 6 feet and 6 feet by 13 feet 6 inches in the central foundation, some, bearing little of the weight, being of hollow construction. A concrete retaining wall joins the outer piers. Later, earth will be filled to the memorial floor level in a mound about 1000 feet in diameter, entirely surrounding the 45 feet of foundation structure now above ground.

The foundation contains in all about 12,500 cubic yards of concrete, of which 2500 cubic yards is in the subfoundation and 10,000 cubic yards in the upper or foundation proper. It is calculated that, without any earth the entire depth of the foundation, it would support the memorial superstructure, the floor of which is 90 to 100 feet above the bedrock in which the foundation is anchored. This calculation is made without considering the steel tubing encasing the subfoundation piers.

Contract for the construction of the foundation was awarded W. F. Comer of Toledo, O., at \$215,000. Fred. Drew of Washington is erecting the upper foundation under subcontract.

Rosslyn Supply Co., Rosslyn, Va., furnished the cement and reinforcing steel for the foundation. "Sailor" and "Security," principally "Sailor," cement was used. Sand and gravel for the foundation was bought from L. E. Smoot of Washington. Dietrich Bros. Co., Pleasant and Davis streets, Baltimore, furnished structural steel for the entire structure.

George A. Fuller Co., 111 Broadway, New York, was awarded contract for superstructure, in the sum of \$1,567,820.

The memorial is of pure classic Greek design. The finest materials obtainable have been selected by the commission for its construction. On exterior and interior about 300,000 cubic yards of marble will be consumed. The exterior will be of Colorado Yule marble, furnished by the Colorado Yule Marble Co. of Marble, Col. Tennessee marble will be used for interior purposes. It will be supplied by the Fenton Construction Co. of Knoxville, Tenn. Also Indiana limestone will be used on the interior, furnished by Ingalls Stone Co. of Bedford, Ind.

An even, soft light in the memorial during the day will be obtained by means of the unique roof plan. A skylight will cover the greater part of the building. Under this will be an inner ceiling of thin, translucent Tennessee white marble slabs, preventing glare and producing a gentle, uniform glow.

Other material for the memorial and firms from which they are purchased are: Sheet metal and slate roofing, J. D. Thompson Company, 2611 Pennsylvania avenue, Washington, D. C.; models, Donnelly & Ricci, 335 E. 46th street, New York; Atlas White non-staining cement, Rosslyn Supply Co., Rosslyn, Va. Carving is done by Ernest C. Bairstow, 1313 13th street, Washington, D. C. The structure will be protected against damp and freezing by a system of hollow wall, hot-air heating.

The accompanying illustrations show the work under way—sinking tubes for subfoundation, tops of completed piers showing at surface of ground, and view of upper foundation erected to the memorial floor level, as it appeared in December—and the memorial as it will stand completed. The illustrations and the facts given herein are authorized and approved by the Lincoln Memorial Commission.

At Austin.

Chamber of Commerce,
Austin, Tex., December 31.

Editor Manufacturers Record:

The Oakoal Manufacturing Co. of San Antonio has just closed a contract with the city for the disposal of garbage, and will erect a plant for the manufacture of briquettes for fuel, which will be sold at considerably less than the market price of coal.

Active work will soon begin on the Austin-San Antonio Highway, and \$250,000 will be spent in making it the best highway in Texas. The Chamber of Commerce and Rotary Club are co-operating with the city in a movement to build a concrete boulevard from the city to the dam, which when completed will be the best piece of road in Texas. Water flowed over the great dam for the first time this week, and Lake Austin is now back practically 30 miles. It is expected that power will shortly be turned on to all machinery supplying water, power and light for the city. The lake is 55 feet deep at the dam, and it is regarded as one of the most beautiful in the South.

WILL L. VINING, Secretary.

Reported Phosphate Rock Discovery.

T. D. Ellis of Centerville, Tex., writes the MANUFACTURERS RECORD that he has discovered phosphate rock on his ground. He says it is 15 feet below the surface, and that he has dug 9½ feet without reaching the bottom of the strata. He adds that from surface indications he thinks the underlying strata of rock covers a large territory, and that as he is not financially able to develop the property he is open for negotiation with people who are interested in such matters.

New Orleans \$3,500,000 Cotton Warehouses and Terminal

[The proposed expenditure by the Port of New Orleans of about \$3,500,000 to build a system of cotton warehouses and terminal with a capacity of nearly 2,000,000 bales, with a view to introducing the most modern methods of handling and storing cotton, is of such far-reaching importance to the cotton interests of the world that the MANUFACTURERS RECORD has secured from Ford, Bacon & Davis, the engineers in charge of this great work, the following description of the plans and methods adopted.—EDITOR MANUFACTURERS RECORD.]

New Orleans, located on the east bank of the Mississippi River 110 miles from the end of South Pass jetties at the Gulf of Mexico, ranks second in the seaboard cities of the United States in the value of exports and imports and fourth in value of imports, which also places it fourth in the United States as a balanced or two-way port.

Although this harbor extends from Baton Rouge to the Gulf, a distance of 237 miles, only 41.4 miles of river frontage are under the control of the Port Commission. The river in the developed portion of the har-

5th. The invention, improvement and use of freight-handling and transportation machinery.

A port may be administered:

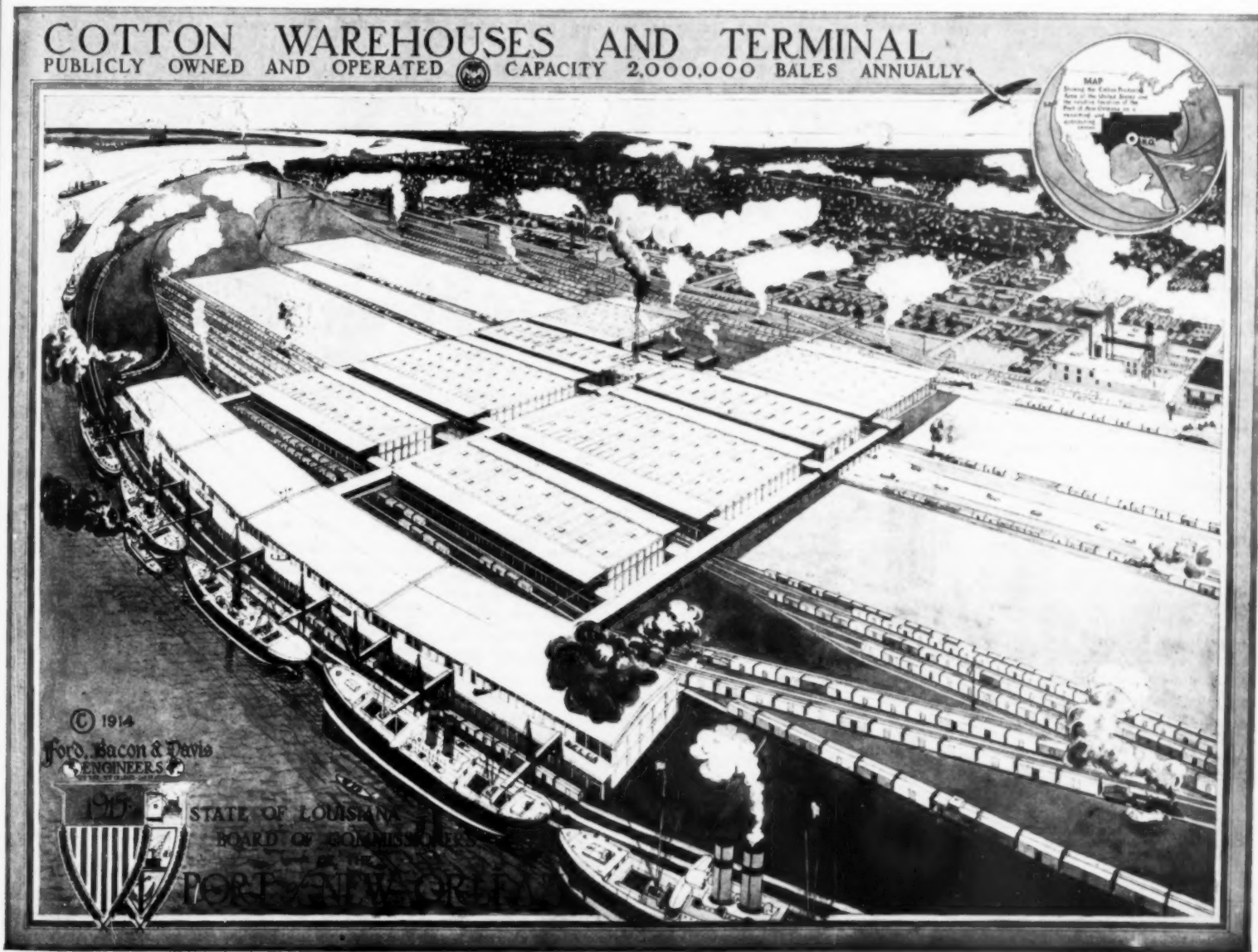
(1) As in foreign municipalities and States in which the general public welfare is made the first consideration.

(2) As a State or municipal public utility, and not as a source of profit.

(3) As privately-owned terminals controlled by steamship lines and trunk line railway systems.

A port should be publicly owned and controlled; or—

1. Wharves with unloading, loading and conveying machinery.
2. Slips with fixed or portable dredging machinery.
3. Terminal railroad yards.
4. Belt railroads.
5. Car lighterage or car ferry equipment for loading direct from car to vessel simultaneously with the loading from wharves.
6. Freight lighterage equipment.
7. Warehouses.
8. Manufacturing lofts.
9. Drydocks.



bor is from one-half to three-quarters of a mile in width, contains over seven square miles, and varies in depth from 40 feet to 100 feet at the wharf lines to a maximum depth of 188 feet in midstream. The present wharf area of the port is 86½ acres.

General port development in the United States has been stimulated by:

1st. The demonstrated economies resulting from European port and harbor developments, which must in competition be established in the United States.

2d. The construction of harbor facilities in advance of trade.

3d. Competition between trunk line railroad systems, necessitating individually-owned terminals.

4th. Probable increase in ocean transportation due to the opening of the Panama Canal.

ganized as a whole and regionalized for various commodities, such as—

1. Iron and steel products.
2. Coal and ores.
3. Grain.
4. Sugar.
5. Cotton, etc.

This cannot as advantageously be done in ports composed of privately-owned terminals.

Not only are the Atlantic, Gulf and Pacific groups of ports in competition, but particularly the rival ports of each group. The capacity as well as the quality of equipment of a port must be in advance of apparent requirements to insure the maintenance of and improvement in its relative position. In essential items, modern port equipment consists of—

The tendency in port development and consequent efficiency of operation not only here, but abroad, is in the increase of handling machinery and warehouses rather than dock area.

The main object of port efficiency is the saving of the time, which means the saving of operating costs, depreciation and fixed charges—

1. Of ships in discharging and receiving cargoes.
2. Of labor and port-handling equipment.
3. Of railroad equipment and yards.
4. Of warehouses and docks.

There are many indications of inefficiency in ports—

1. The small-load factor of dock laborers.
2. The crude handling devices employed.
3. The filth and disorder generally apparent on harbor fronts.



SITE OF COTTON WAREHOUSES AND TERMINAL AT NEW ORLEANS DECEMBER 15, 1914.

Efficiency in any branch of industry has certain symptoms. Among them are:

1. The employment of all the men engaged in the business up to their full capacity.
2. Sufficient equipment.
3. Order.
4. Neatness of surroundings.

In determining upon the erection of State warehouses for the port of New Orleans the Board of Commissioners of the Port of New Orleans decided that cotton would be the first commodity it would prepare to handle. Of the total value of the exports of domestic merchandise from the port of New Orleans for the year ending December 31, 1913, cotton was 48.41 per cent., with principal items as follows:

		Per cent. of total exports.
Cotton	\$86,215,487	48.41
Wheat	14,355,965	8.06
Leaf tobacco.....	10,475,702	5.88
Illuminating oil.....	5,021,124	2.81
Wheat flour.....	4,898,252	2.75
Staves	4,206,159	2.36
Total exports.....	\$178,078,569	100.00

The gross receipts and exports of cotton at New Orleans for the years shown have been as follows:

Year ending August 31.	Gross receipts. (Bales.)	Exports. (Bales.)
1907.....	2,313,474	2,072,387
1908.....	2,015,071	1,870,709
1909.....	2,107,956	1,957,472
1910.....	1,342,112	1,193,322
1911.....	1,629,308	1,513,023
1912.....	1,709,028	1,690,625
1913.....	1,468,363	1,350,327
1914.....	1,363,195	1,702,010

If it is assumed that the cotton produced in the States of Louisiana, Mississippi and Arkansas is directly "tributary" to New Orleans, as the port through which it should move at least expense, then New Orleans is annually receiving only about two-thirds of this cotton. If, in addition to the crops of Louisiana, Mississippi and Arkansas, one-fourth of the crop of Tennessee, Oklahoma and Texas is considered as "accessible" to New Orleans, the port today is receiving only 40 per cent. of the cotton that could as advantageously move through the port as through any competing port. Based on the crop of 1913-1914, New Orleans, therefore, received 1,890,758 bales out of a crop of 2,865,000 bales produced in territory immediately tributary to New Orleans, or, New Orleans received only 1,890,758 bales out of a crop of 4,572,750 bales produced in the territory accessible to the port. The improved conditions which it is expected the new warehouses and terminal will furnish in the concentration of the handling of cotton, with its consequent reduction in cost per bale handled, should enable New Orleans to secure a much greater percentage of the accessible crop than the 40 per cent. now received.

While 90 per cent. of the cotton received at New Orleans is ultimately exported, only about two-thirds of the total exports are shipped to New Orleans on through bill of lading, the remainder of the cotton received being about equally divided between factors or consigned cotton and f. o. b. cotton.

Consigned cotton, which represents approximately 20 per cent. of the total receipts at the port, is cotton which is shipped consigned to a factor in New Orleans, to be stored until sold for the account of the owner. Consigned cotton, as at present handled, is drayed from the railroad or steamboat terminal to the compress yard,

where, after sampling, it is stored, and later, when sold and ordered shipped by the buyer, is removed from storage, and, if flat, compressed and then drayed to the wharf to await arrival of the ship.

F. o. b. cotton, which also represents approximately 20 per cent. of the total receipts at the port, is cotton that has been accumulated at interior points and sold on sample, subject to examination, at the railroad depot in New Orleans. This class of cotton which has been compressed before shipment is unloaded by the railroad hauling it and stored in the shed at its terminal, where, under an agreement with the railroads, it is entitled to 10 days' free storage. During this time the buyer is afforded proper facilities for examining the cotton, and if it is accepted by the buyer it is drayed at the buyer's expense to the wharf for export.

Through cotton, which represents 60 per cent. of the total receipts of the port, is cotton that has been accumulated at interior points and has been sold at such points to the buyer for export direct, and is consequently shipped from the interior point on a through bill of lading combining both the railroad and water freight. This cotton is delivered by the railroad handling it to New Orleans, either directly to the wharf, or if the ship for which the cotton is intended is not in port, held by the railroad until the arrival of the ship and then delivered to the wharf.

One of the most important functions of the New Orleans warehouses and terminal is to make the port of New Orleans a deposit market for cotton. Interior buyers will be able to ship cotton to New Orleans to these warehouses, where the cotton can be held subject to the order of the buyers, while equal facilities will be afforded planters for storing their cotton until such time as it may be advisable to sell it.

At present a contract has been completed for dredging in the Mississippi River and filling of the site, which involves the removal from the river and placing on the site of approximately 2,000,000 yards of earth at a cost of \$180,000. The area of the site acquired, together with the additional area made available by the filling, will be ample to accommodate warehouses, terminal trackage and dock facilities to handle a total business through the port of 4,500,000 bales of all classes of cotton per annum.

As indicated in the accompanying general perspective, the warehouses and terminal now being constructed have a capacity of 2,000,000 bales of cotton annually. This was determined from a careful investigation of the conditions governing the marketing of cotton in the port, through which it was found that the ratio of storage capacity to the amount of cotton handled annually was for consigned cotton, 1 to 2½; for f. o. b. cotton, 1 to 5, and for through cotton, 1 to 10.

The terminal buildings cover an area of approximately 50 acres. Including the trackage adjacent to the plant, the total area covered is approximately 100 acres. The wharves are two-story, reinforced concrete, 2000 feet in length and 180 feet in width. The lower story is 16 feet 8 inches and the upper story 15 feet 8 inches in height. The warehouses are six in number, and, with the wharf sheds, have a normal capacity of more than 450,000 bales, with an emergency capacity of 600,000 bales.

In addition to the warehouses for the different classes of cotton, there will be a large compress plant. This

will be located at about the center of the property, but on the north side, approximately 1000 feet in the rear of the wharf. The compress building and receiving shed will occupy an area of 270x410 feet. On each side of the compress building there will be one of the consigned cotton warehouses, each of which occupies a space 516x270 feet, and is divided into 32 compartments, each 32x100 feet 6 inches from center to center of walls. South of the consigned warehouses will be the large sorting platforms, each 674x130 feet. On each side of these platforms there will be two railroad tracks depressed so that a car floor will be level with the floor of the platforms or of the warehouses on the opposite side of the tracks. South of the sorting platforms will be two additional consigned and f. o. b. warehouses. Each of these warehouses occupies a space 676x273 feet, and are each divided into 42 compartments 32x100 feet 6 inches from center to center of walls. South of the f. o. b. and consigned warehouses, but separated from them by railroad tracks, are the warehouses for through cotton. These warehouses, of which there are two, each occupies a space of 676x173 feet, and each is divided into 21 compartments 32x101 feet center to center of walls. Between the warehouses for through cotton and the wharf are railroad tracks serving the south side of the through warehouses and the north or rear side of the wharf. The wharf proper is 120 feet wide on the first floor and 100 feet wide on the second floor, with a total length of 2000 feet. In front of the wharf, and extending at full length, is a creosoted pile apron wharf, 44 feet wide, on which is located two railroad tracks.

The entire construction of the terminal, with the exception of the timber apron wharf, will be of reinforced concrete and steel. The buildings are supported on creosoted pine piles varying in length from 35 feet to 50 feet, depending upon the weight to be carried by each pile. The warehouses are one story high, with the roof approximately 35 feet from the floor of the warehouses for consigned and f. o. b. cotton and 45 feet from the floor of the warehouses for through cotton.

The wharf will be of reinforced concrete, supported on untreated pine piles driven in clusters, placed 20 feet on centers each way. The piles will be cut off below low water, capped, and reinforced concrete columns carried up to the first floor of the wharf, which will be at an elevation of approximately five feet above the highest known water. The first floor of the wharf is designed to support a total load of 500 pounds per square foot, and the second floor, which will be 16 feet 8 inches above the first floor, is designed for a load of 350 pounds per square foot. In front of the concrete wharf will be the timber apron and trestle supporting the two railroad tracks. The piles supporting this apron and trestle will be of creosoted pine, and as the depth of water at the front line of the apron at high water will be 60 feet, the piles used in the construction will vary from 90 feet at the edge to 75 feet at the rear.

Before the design of the wharf and shed structure was finally adopted the details of the latest types of such construction in New York, Philadelphia, Los Angeles and other ports in this country and Liverpool, Hamburg, Bremerhaven and Havre abroad were very carefully considered. As a result, the general design of the wharf and shed embodies the latest developments that have been proved successful in other ports, with

such modifications as to best adapt these developments to the conditions of this port. The depressed railroad tracks in the rear permit of unloading freight from the cars practically within the reach of the ship's tackle, while the tracks on the apron of the wharf allow of direct transfer from car to ship, or vice versa.

As a part of the cotton handling and conveying system there are $4\frac{1}{2}$ miles of overhead and ground level runways for the accommodation of trains composed of motor car and trailers for the conveying of cotton from any one compartment to any other compartment, or from car to ship, or vice versa. The elevated runways are on the level of the second floor of the wharf and the ground runways that of the first floor. As will be noted, large receiving and sorting yards are a part of the conveying and transportation equipment. The terminal yard trackage being constructed will have a capacity of approximately 2500 cars, which will be sufficient to accommodate a daily movement of 1000 loaded cars, equivalent to a shipment of from 30,000 to 50,000 bales of cotton.

In addition to the transportation of cotton by means of the upper and lower runways and electric trains, the entire yard trackage, together with the locomotive and freight car or other equipment, may be used in the transfer of cotton from warehouse compartments to the wharves, and vice versa. The appliances other than runways and specially-designed bridge cranes for the handling of cotton consist of gantry cranes on the wharf front for loading cotton into ships or receiving cotton from river boats or lighters, together with continuous conveyors for cotton handling at the shipside similar to those employed for other commodities now located on the wharf front. Other appliances are automatic grapples attached to cranes used in lifting and lowering cotton bales and mechanical devices for pulling or pushing bales of cotton from any point in tiers of cotton piled 10 and 15 bales high. The handling and transportation of cotton from compress to ship, or vice versa, is in every feature mechanical. Experimental handling apparatus has been on exhibit in New Orleans for a considerable period, and during this time many members of the Cotton Exchange and others interested in cotton transportation handling and storage have witnessed the operation of these appliances. The opinions of Mr. E. J. Glenny, president of the New Orleans Cotton Exchange, and of Mr. John F. Clark, of Messrs. Hayward & Clark, ex-president of the New Orleans Cotton Exchange, have been recently published, and are as follows:

[New Orleans Times-Picayune, December 18, 1914.]

The device which has been perfected for use in the new cotton warehouses for taking a bale of cotton from a pile, irrespective of its location, has been especially commended by John F. Clark, former president of the Cotton Exchange, and a leading cotton factor of New Orleans. Discussing the various mechanical devices provided, which were recently tested, Mr. Clark said:

"I consider them remarkable and look for them to change the conditions as to the storing and delivery of cotton. With these appliances cotton can be stored in a third or a fourth of the time now required, and deliveries made much more advantageously. I was particularly impressed with the device for taking a bale from a pile irrespective of the location of the bale.

"For years back, in fact, during all my connection with the operation of cotton presses, cotton men have often wondered if it was not possible to so arrange our system that we could extract a bale of cotton from the pile in which it was stored without handling quite a number of bales in doing so, and without the loss of time and labor attendant upon that method.

"Messrs. Ford, Bacon & Davis, engineers for the new cotton warehouses, have answered our inquiry. They have provided for this very thing. I saw it done in a remarkably short time; I might say one-tenth of the time generally required. I think no warehouse in the country has such useful improvements. They will certainly prove of great value to the trade when put in operation in the new plant."

[New Orleans States, December 13, 1914.]

Having witnessed the test Thursday of the Ford, Bacon & Davis cotton device, E. J. Glenny, president of the New Orleans Cotton Exchange, said Saturday that the invention solved great difficulties in the cotton trade. Here is what Mr. Glenny says:

"The ability to pile and unpile cotton with dispatch

and at a minimum cost will naturally work for the benefit of all engaged in the cotton business from the planter to the ultimate consumer.

"But the thing of chief value to the trade is the apparatus for removing bales from the bottom of piles without the necessity of disturbing other cotton in the pile. This particular invention would seem to me to be of greater value to the labor than to any other branch of the cotton business. Heretofore to remove a bale from the bottom of a pile it was necessary to practically break up the pile. Today it is possible to remove any designated bale within a period of a few minutes, and the pile remains intact.

"Cotton pressmen had grown to believe this impossible, but those who saw the apparatus demonstrated the other day are convinced that a new era in cotton handling and the construction of warehouses is at hand, when it is remembered that in order to quickly get to any particular bale, warehouses costing enormous sums, five or six stories high, have been built.

"With this apparatus, cotton can be piled as much as 20 bales high and the cost of construction reduced to a minimum through the building of one-story warehouses. In New Orleans these benefits will be shown on the new warehouses being constructed on our river-front. Roughly, it will save considerably over a million dollars in initial cost, which is not the only saving; it will permit a cheaper handling rate, because it reduces the overhead charge, in the shape of interest on bonds, which bears upon every bale for all time which goes through the warehouses. In other words, we cannot overestimate the value of Messrs. Ford, Bacon & Davis' simple device."

With the appliances used, in the pulling or pushing of cotton bales from standard tiers, and in the grappling of bales, there is absolutely no damage to the fiber of the cotton or the covering of the bales. It was necessary to develop mechanical handling appliances consisting, as mentioned before, of cranes, grapples, machines for pulling or pushing bales from piles, electric trucks and trailers and runways to eliminate multiple story storage. The estimated cost per bale capacity for multiple story construction was more than \$10, depending upon the type of construction used and the insurance requirements in relation to the construction. Through the design of warehouses adopted by the Board of Commissioners eliminating the floors in the multiple story design, thus among other items of saving eliminating expensive foundations to support the contents of the buildings as well as the buildings and tiering the cotton from 10 to 20 high, the cost of construction is reduced to approximately \$4 per bale capacity. At least \$1,500,000 has been saved in the present development in the adoption and making practicable of the high tiering plan of storage rather than the multiple story type of storage in use elsewhere, particularly in New England and abroad. The elimination of floors, allowing the weight of the contents of the building to rest upon the ground, making special foundations unnecessary, is exemplified in the design of the storehouse of the American Sugar Refinery at Chalmette, where a large sugar stock is stored. This commodity is of great weight, and foundations and structure designed to sustain the large capacity required would be very expensive. The multiple story plan of storage has been adopted almost entirely to allow of the sorting or selection of particular bales of cotton or other commodity, and not because of economy of construction. The coffee warehouse companies of Havre tier the coffee 30 bags high. As stated before, this method of storage has always been used where sorting was not necessary. With appliances for sorting and the advantages of bulk storage the elimination of enormous construction expense as well as cost of handling is effected.

The plant as designed by Ford, Bacon & Davis and illustrated herewith is entirely original. Other plants, while embodying some of the features of this plant, do not possess them in combination, and none of them possesses all of the features.

This is especially noticed in the Trafford Park safes, as described in the MANUFACTURERS RECORD of September 17, 1914. The engineers wish here to acknowledge the courtesy of Mr. Marshall Stevens, chairman of the directors of the Trafford Park estates, in submitting for their information detailed plans of the plant at Trafford Park, together with any information desired by them in relation to its operation. The handling machinery of the Trafford Park plant consists of electric

traveling bridge cranes, which are used in combination with a monorail transfer after the cranes leave the compartments. The purposes of the Trafford Park plant and those of the New Orleans plant are in general opposite, one being designed to accommodate a retail market and the other the storage of large blocks of purchased cotton. The Trafford Park plant was designed primarily to meet the requirements of the consumer, while the plant at New Orleans was designed to meet marketing and distribution conditions or the requirements of the planter.

The employment of the traveling crane as a piece of conveying apparatus for cotton handling was first used in Texas City, although this type of conveyor for handling commodities, both agricultural and otherwise, has been almost universal for many years.

It is believed that the principles of storage, handling and transportation involved in this cotton warehouse plant are equally applicable to standard packages of agricultural or other commodities or uniform pieces. In other words, the plant as designed could be as well used for the storage of bags of sugar, coffee or hogsheads of tobacco, bales of sisal grass or other similar commodities. The original features of the plant are the elevated runways for the transportation of cotton and other commodities, transversely and longitudinally over railroad yards and over lower platforms or runways which connect all buildings and are on all sides of all buildings. These runways or elevated roadways are intended to accommodate any kind of vehicular traffic, including trains propelled by storage battery, electric motor cars or any other self-propelled motor car, animal power or any form of traction employed in the usual surface roadway of a city street.

The classification features of the warehouses and their contents are important as applied to storage plants, particularly for cotton storage. This plant is made up of a series of warehouses designed to receive what is known as "consigned," "f. o. b." and "through" cotton, each house being adapted to each particular class of cotton. The handling of cotton in trains composed of motor car and trailers, in which train cars are loaded at individual compartments and collected by motor cars into trains for delivery at shipside, or vice versa, is a new adaptation.

Cotton is ordinarily weighed in the usual beam scale. In this plant a similar scale is intended to be used in front of any compartment on the runway platform, the scale being supported by special appliances.

The design of these warehouses was decided upon by the Board of Port Commissioners, with the approval of the Cotton Exchange, after an exhaustive investigation made of all domestic and foreign ports of importance handling agricultural commodities, particularly cotton. In the latter part of July, Ford, Bacon & Davis submitted a number of designs for this development, one of which was selected, and the plant is to be built under these designs:

1st. As a part of a comprehensive plan which may be enlarged in storage capacity, terminal trackage and wharf space.

2d. So that minimum insurance rate on buildings and contents can be obtained.

3d. To enable the plant to be operated at maximum earning capacity, and after providing the best possible facilities for receiving, storing and shipping cotton, also provide for the storage in any vacant capacity of coffee, rice, jute and other standard package commodities.

4th. To permit of the receipt and handling of cotton and other commodities from vessels and their transfer to freight cars, adapting the plant to two-way operation.

5th. So that flat as well as compressed cotton may be handled and stored economically.

6th. So as to be adapted to the present methods of inspecting, weighing and classing of cotton, as well as to the proposed methods.

7th. To handle "factor's" cotton, "f. o. b." cotton and "through" cotton with equal efficiency.

Upon the completion of this plant New Orleans will have the most modern warehouse system adapted to storage, handling and shipping of an agricultural commodity than now exists anywhere. It is estimated that the reduction in cost of handling and storage of cotton through the operation of these warehouses and terminal over present costs will amount to approximately 40 per cent.

The cost of the cotton warehouses and terminal, including the immense yards of the Public Belt Railroad, located on the site, is estimated to be approximately

\$3,500,000. In order to finance such a development the Board of Commissioners had been authorized by a constitutional amendment, which was approved by the people of Louisiana in the fall of 1910, to erect and operate warehouses and other structures necessary for the commerce of the port, and to that end to issue bonds, which could be secured by mortgage on the warehouses and by the net receipts from the operation of such warehouses. Acting under this authorization, the board approved an issue of \$3,000,000 40-year 5 per cent. bonds, which were purchased by three of the local banks, and the money deposited with the trustees May 1, 1914.

A contract has been awarded by the Board of Commissioners to the Jefferson Construction Co. of New Orleans for the construction of the compress building and the consigned and f. o. b. warehouses. In the near future a second contract, covering the through cotton warehouses and the wharf, will be awarded, thus completing the present construction.

This development could only have been accomplished by the employment of an experienced organization having specialists available for any department, and would not have been a success without the full co-operation of the Board of Commissioners, composed of Messrs. Ernest M. Loeb, president; A. M. Lockett, vice-president; Walter Van Benthuysen, secretary; C. D. O'Connor and W. O. Hudson, and the various associated committees of the Cotton Exchange and others interested in the development of the cotton warehouses and terminal.

In preparing the plans and specifications the engineers have been assisted by the special committee of the Cotton Exchange on public warehouses, composed of the following members: Messrs. W. P. Stewart, chairman; John F. Clark, W. H. Chaffe, Jos. A. Airey and S. Walter Stern. Mr. E. J. Glenny, as president of the exchange, has attended all the conferences of the Dock Board, its engineers and the Cotton Exchange committee, while the membership of the Cotton Exchange in general has rendered every assistance possible. Col. H. G. Hester, secretary of the Cotton Exchange, has furnished general data and statistics of the cotton production and marketing, particularly the detailed data relating to the cotton business of New Orleans.

Ford, Bacon & Davis have had a large organization under the direction of Mr. Wm. von Phul, a member of the firm, engaged on the work. Mr. A. L. Black, who is a well-known Orleanian, is directly in charge of the design and construction, with Mr. Chas. J. Hardy and Mr. George H. Ruggles as principal assistants. Mr. Hardy is well known locally. Mr. Ruggles, since his graduation from Lehigh University, has had a very wide experience in wharf and terminal work, having been connected with the engineering departments of two of the largest trunk line railroads in the country. In 1904 he entered the employ of the Panama Canal Commission, and remained in its employ until 1912, during which time he was engaged on the design and construction of the lumber wharves at Balboa, reinforcement of the Rio Grande dam, public works for the cities of Panama and Colon and the Canal Zone, foundations of the Atlantic terminus of the canal at Cristobal and Colon, and municipal work of the central division of the Isthmian Canal. Besides these gentlemen, there are engaged on the work a number of other engineers, architects, draftsmen and specialists in the various branches of engineering and of the cotton business, who are experts in all details covering the design, construction and operation of cotton warehouses and terminals.

Wants to Locate in Peanut-Growing Section.

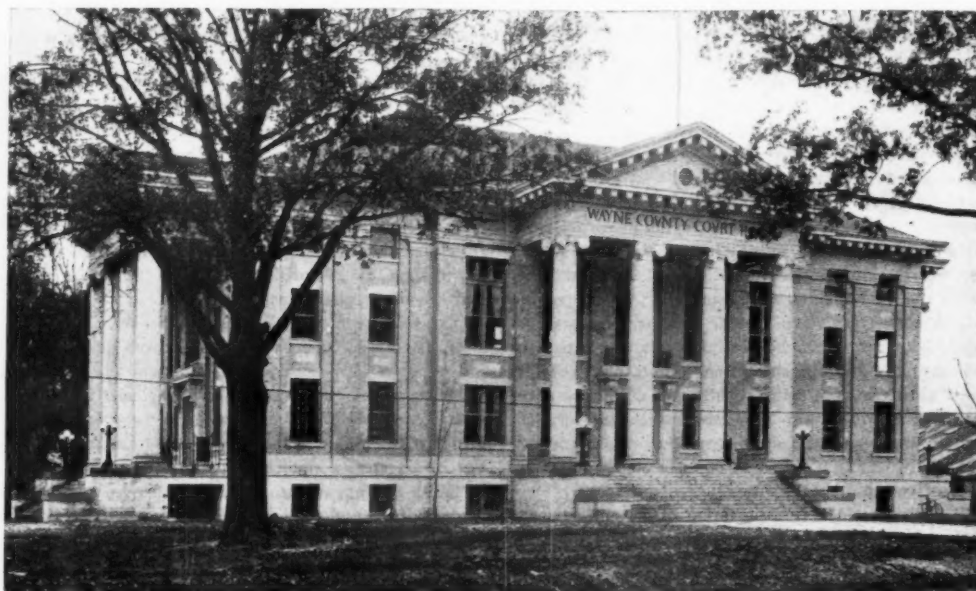
Mid-West Candy Co.,
1643-45-47 W. Lake Street,
Chicago, Ill., December 26.

Editor Manufacturers Record:

We desire to locate in the vicinity where peanuts grow in abundance, as this is the principal item used in the manufacturing of our products.

We prefer to have a building on the railroad track. Could you advise us the proper parties to communicate with to get the desired location? A. SHALBAZ.

[If the officials of this company will travel through Southeastern Virginia and stop at Norfolk, Suffolk, Franklin and other nearby points they will see more peanuts than they ever dreamed were ever grown.—Ed. MANUFACTURERS RECORD.]



WAYNE COUNTY COURTHOUSE, GOLDSBORO, N. C.

Wayne County Courthouse.

The Wayne county courthouse at Goldsboro, N. C., has just been completed. The building is 68x118 feet, three stories with basement, the latter containing, in addition to the mechanical plant, office and record-storage rooms and assembly-room. The exterior is stone up to the first floor level, above which it is light gray pressed brick, with stone trimmings. All portico columns and cornices are of stone. The interior is fire-proof, the hall and corridor floors and stairs being of marble, with marble wainscoting. In other parts of the building Marbleoid composition flooring has been used, and the interior trim is of oak. The structure cost \$102,000, and was erected by W. P. Rose of Goldsboro according to plans and specifications by Milburn, Heister & Co. of Washington, D. C.

A Clever Money-Saving Plan.

By LENA RIVERS SMYTH.

In making a study of welfare work and the conditions of the cotton-mill employes of North Carolina, I have found that one of the most lasting and effective things toward upbuilding the working people besides education is to interest them in saving money. Those who do save are much better citizens and are much more progressive than those who are shiftless and throw their money away. And it is surprising the number one can find in every village who have made records. Nearly every cotton-mill man can point out some nice-looking cottage on the suburbs of his village that has been built by one of his employes.

There are several of the cotton-mill men who have seen the superiority of the help who save, and have made advancements to encourage the help to this end. Some of the mills have bought land and sold lots to the help at reasonable prices and on easy terms, while there are quite a number of the country mills that are situated away from banks and other saving institutions that take deposits from the help and pay them a good rate of interest. Some of the small mill towns have building and loan associations started by the mill officials for the benefit of the help.

A very clever and effective plan has been started by the Salisbury cotton mill of Salisbury, N. C., and one which is taking a widespread interest among the help, and especially with the children. About two years ago the mill employed a very capable woman who was interested in the mill operatives to solicit depositors among the people, and especially the children. The amount of \$100 is given each year, \$50 of which is paid to the lady in charge and \$50 in prizes of \$10, \$5 and \$2.50 each to the boy and to the girl who saves the most money during the year. Fifteen dollars, which is divided into \$1 prizes, is awarded to others who deserve merit.

During the two years of the existence of the scheme the children as well as the grown people have become very much interested in saving, and the amount this

year has grown to \$3000, which is deposited in one of the local banks. Next year Mrs. G. O. Kluttz, who makes the personal solicitation among the help every two weeks on pay day, wants to raise the amount of deposits to \$5000.

The prizes are offered to boys and girls under 16 years of age, and the prize winner this year is a small boy who has deposited the amount of \$10 every two weeks, with the exception of just a few times. The money is given to the depositors just before Christmas, but there are several who expect to return a bulk of their savings to the savings fund and have it continued next year.

Developing Industrial Sites.

Chattanooga, Tenn., December 23.

Editor Manufacturers Record:

The Chattanooga Estates Co., which owns 8000 acres of land on the north side of the Tennessee River at Chattanooga, which represents a frontage on the Tennessee River of about 14 miles, is making considerable headway in the development of its property. It has located one large factory for the manufacture of enamel goods. The work on the construction of this factory is now under way.

The Chattanooga Estates Co. has through the Chamber of Commerce negotiations pending for three other large factories. Since the completion of the water-power electric plant, which has only been in operation now 12 months, there has been more development of new factories than I have noticed for the past several years, and from negotiations that are now well advanced it looks like they will locate more factories in the next six months than we have in the past three years. The completion of the lock and dam, 32 miles below Chattanooga, makes slack water all along the water-front at Chattanooga on the Tennessee River.

The new concrete bridge across the Tennessee River is under course of construction at the present time.

The general outlook for new business in this district is very promising for the immediate future and during the early part of 1915. In fact, I have never seen the prospects better for the rapid growth of Chattanooga than at the present time.

C. E. JAMES.

Steamboat and Barge Line.

The Cumberland Transportation Co. of Monterey and Nashville, Tenn., has been incorporated to take over a transportation business established on the upper part of the Cumberland River by George N. Welch. Three steamers and nine barges will be operated between Burnside and Nashville. The list of incorporators is headed by Mr. Welch, the others being Sidney F. Carr of Nashville, J. W. Welch, W. Y. Pratt and G. I. Frazier; capital stock \$15,000.

Board of Trade, Bristol, Va.-Tenn., is corresponding with Connecticut cotton manufacturers who plan building a 10,000-spindle cotton mill at Bristol.

Coal Affected by Industrial Depression of 1914

Except in Kentucky and West Virginia, there was a marked decrease in the production of coal in the Southern States during 1914, according to the estimates of Edward W. Parker, statistician United States Geological Survey, in his annual review. The business depression was felt particularly in Alabama, because of its importance as an iron-making State and the fact that the iron interests more than any other branch of the mining industry suffered from the unsatisfactory conditions in 1914. Estimates of the coal production in Alabama for 1914 varied between 12,500,000 and 15,000,000 short tons, compared with 17,678,522 tons in 1913. In addition to the decrease due to the demoralization in the iron trade, the disturbed situation in Mexico resulted in the loss of some market for Alabama coke. The markets for Alabama coal were affected by the low price of petroleum in the Southwestern States; by increased water-power developments; by the competition of coal from Kentucky and Illinois in the markets of Louisiana and Mississippi, which are normally supplied by Alabama, and by the smaller bunker trade, which suffered because of the cutting off of exports of cotton after the declaration of war in Europe. On account of the keen competition which developed as a result of the decreased demand, prices were demoralized, but up to the close of the year there had not been any decrease in wages.

In some parts of Tennessee the decrease in coal production during 1914 was between 35 and 50 per cent., but it is estimated that for the entire State the loss was about 20 per cent., and that the output was less than 5,500,000 short tons, compared with 6,903,784 tons in 1913. In this State the industry was somewhat affected by the decrease in the demand from the iron furnaces, but probably to a larger extent on account of the falling off in the export of cotton, which reduced purchasing ability throughout the rural communities. There was a decrease of 5 to 15 per cent. in the average price compared with 1913.

Kentucky presented an exception to the general rule in 1914, with a small increase in the production of coal. This increase is not to be attributed to anything especially favorable in the way of demand, but to the great developments which have taken place in the eastern part of the State during the last two or three years and to the fact that this region was in a position to fill a large part of the shortage created by the idleness of the Ohio mines. In the Western Kentucky field the production in 1914 was about 92 per cent. of the output in the preceding year. The total production is estimated at approximately 20,000,000 tons in 1914, compared with 19,616,000 tons in the preceding year.

The coal production of Maryland showed a decrease of about 500,000 tons in 1914, and that of Virginia 1,300,000 tons. In the former State the decreased production was due chiefly to the approaching exhaustion of the Big Vein, which has supplied more than 95 per cent. of Maryland's total coal production. Many of the mines have already been worked out and abandoned, and others are "robbing" pillars and preparing to close permanently. Developments, however, are being made upon the Tyson and other lower but thinner beds, and it is expected that within a few years these operations will be sufficiently advanced to bring Maryland's production to its normal amount. In Virginia the decreased demand from the transportation companies and from the cotton mills in North and South Carolina caused the smaller output in 1914.

The conditions in the coal-mining industry of West Virginia during 1914 may best be expressed as "mixed." The effect of the business depression was, of course, seriously felt, but the production for the year will not show any material decrease from 1913. The report of the State Department of Mines for the fiscal year ended June 30 showed an increase of nearly 4,500,000 short tons over the preceding year, but this included six months of good times in 1913 and three months more in 1914. The business done after April 1, 1914, was in striking contrast to that of the first three months of the year. Production in some of the older districts, as the Pocahontas, New River and Fairmont, was materially reduced, but this was partly made up by the output of a number of new mines opened along Coal,

Guyandotte and Big Sandy rivers, from which some coal was shipped West to make up the shortage caused by the long strike in the eastern districts of Ohio. Labor troubles were responsible for a reduction of output in the Kanawha district. The production of coke in West Virginia in 1914 is estimated at not much more than 55 per cent. of that of 1913, but a part of the decrease in coke production in the State is attributed to the increased use of by-product coke, none of which is made at the mines. The ovens in other States, however, are largely supplied by West Virginia coal.

In 1913 the coal production of West Virginia amounted to 71,308,982 tons. In 1914 it will barely reach 70,000,000 tons, and may be considerably below that figure.

Notwithstanding the slough of despond through which the coal-mining industry of the United States was compelled to work its way during the last nine months of 1914, a decidedly hopeful tone prevailed at the end of the year, and the opinion generally expressed to Dr. Parker was that the receding tide had reached its full ebb, and optimism was apparent regarding the coming year. According to Mr. Parker's estimate, which is based upon numerous estimates received from leading coal-mine operators and others familiar with the industry, the total coal production of the United States in 1914 was about 510,000,000 short tons, a decrease of about 60,000,000 tons compared with the record output of 1913. Practically all of this decrease was in the output of the bituminous mines. The production of Pennsylvania anthracite in 1914 was not materially different from that of the preceding year, which was 81,718,680 long tons. In 1914, however, about 1,000,000 tons (principally nut and steam sizes) went into storage, so that the quantity sent to market was about 1,000,000 tons less than in 1913.

The principal decreases in the production of bituminous coal were in the coking districts. It is estimated that in Pennsylvania alone the production of bituminous coal decreased between 20,000,000 and 25,000,000 tons, and that the larger part of this decrease was in Fayette and Westmoreland counties, which constitute the Connellsville and Lower Connellsville coking districts. The weekly reports of coke production published in the Connellsville Courier indicate that the output of coke in the two Connellsville districts was less than that of 1913 by about 6,000,000 tons, or 30 per cent., and as each ton of coke represents about 1½ tons of coal, a decrease of nearly 10,000,000 tons in the coal output is indicated in these districts alone. The proportionate decrease in the other coking districts was even greater, and was particularly noticeable in Alabama. In West Virginia coke-making has become yearly of relatively less importance, and although coal production in some of the older districts showed substantial losses, new mines have been opened, and these have in part made up the decrease in production in the older districts. Moreover, West Virginia mines that ship to the Western States have been called upon to make up the shortage in those States caused by the prolonged strike in the Eastern Ohio districts, and the section of West Virginia thus affected showed an increased production over 1913.

Among the Eastern States Ohio showed the largest proportion of decrease, for in addition to the depressed condition of business the labor controversies in the eastern part of the State kept a number of mines idle for practically the entire year. The output of the State for 1914 is estimated at barely 6 per cent. of the output in 1913.

The production in the Mississippi Valley States is estimated to have decreased about 10 per cent., and the estimated decrease in the Rocky Mountain States is between 5 and 10 per cent.

On the Pacific coast the constantly extending use of California petroleum for fuel is the principal factor of influence in the coal industry, although the depression in the lumber trade in Washington had also a reflected adverse influence on coal production, which is estimated to have been about 20 per cent. less than in 1913.

The opinion is generally expressed that the chief effect of the war in Europe upon the coal trade of the United States was to retard or prevent the return to more normal conditions which was about to be accom-

plished when the war broke out. The first three months of 1914 were of unusual activity, the high rate of production of the preceding year having been carried over into the first quarter of 1914 and the weather in January and February having stimulated the demand to some extent. Then came the slump in the iron trade, general depression in business, shut-down of coke ovens and a period of distress throughout the coal-mining regions which has rarely been exceeded. The demand, production and prices were all at so low an ebb when the war broke out that it is not believed to have had any direct influence on the coal trade. The quantity of coal exported from the United States, if compared with the total production, cannot be considered very large, and so far the greater part of it goes to Canada, which has taken about the same amount in 1914 as in preceding years.

As usual in times of depression and of decreased production, there was a plentiful supply of labor throughout the bituminous coal-mining region during the entire year, and for the same reasons there was no complaint of inadequate transportation facilities.

Reduced Output of Portland Cement in 1914.

According to preliminary returns from all the operating mills in the United States except one, it is estimated by Ernest F. Burchard of the United States Geological Survey that the quantity of Portland cement manufactured in the United States in 1914 was approximately 88,514,000 barrels, compared with 92,097,131 barrels in 1913, a decrease of about 3,583,000 barrels, or nearly 4 per cent. The estimated shipments of Portland cement during 1914 were 86,715,000 barrels, compared with 88,689,377 barrels in 1913, a decrease of about 1,975,000 barrels, or 2.2 per cent. On account of the surplus of production over shipments, stocks of cement at the mills apparently increased more than 14 per cent., or from 11,220,328 barrels in 1913 to 12,818,000 barrels at the close of 1914. It may be necessary to revise downward the figures for stocks, as the estimates furnished by some producers undoubtedly included more or less unground clinker, but it is believed that the figures for production and shipments are very close to those that will be shown later by exact reports from cement producers. The following table gives, by commercial districts, in which Southern States are included, the estimated production, shipments and stock for 1914, and the actual production, shipments and stock for 1913, together with the per cent. of change, as compiled by E. F. Burchard:

Southern Indiana and Kentucky :	Actual, 1913.	Estimate, 1914.	Change (per cent.).
Production.....	3,005,417	2,555,000	— 15.0
Shipments.....	2,861,624	2,616,000	— 8.6
Stock.....	436,793	385,000	— 11.8
Maryland, Virginia and West Virginia :			
Production.....	2,668,338	2,792,000	+ 4.6
Shipments.....	2,529,629	2,840,000	+ 12.3
Stock.....	341,120	295,000	— 13.5
Tennessee, Alabama and Georgia :			
Production.....	3,082,623	2,668,000	— 13.4
Shipments.....	2,958,829	2,585,000	— 12.6
Stock.....	287,300	374,000	+ 30.2
Iowa and Missouri :			
Production.....	8,427,012	8,948,000	+ 6.2
Shipments.....	7,941,620	9,030,000	+ 13.7
Stock.....	1,397,847	1,200,000	— 14.2
Nebraska, Kansas, Oklahoma and Central Texas :			
Production.....	6,350,646	6,411,000	+ 1.0
Shipments.....	6,190,040	6,088,000	— 1.6
Stock.....	848,949	1,150,000	+ 35.5
Total in United States :			
Production.....	92,097,131	88,514,000	— 3.9
Shipments.....	88,689,377	86,715,000	— 2.2
Stock.....	11,220,328	12,818,000	+ 14.2

Production of Copper in 1914.

The copper production of the United States in 1914 will show a marked decrease from that of 1913, according to figures and estimates collected by B. S. Butler of the United States Geological Survey. Reports have been received from all plants known to produce blister copper from domestic ores and refined copper. At an average price of about 13.5 cents a pound, the 1914 output has a value of \$152,400,000, compared with \$189,795,000 for the 1913 output. The large decrease in production in 1914 was due to curtailment of produc-

tion during the latter part of the year on account of the reduction in tonnage exported to Europe.

The figures showing smelter production from domestic ores represent the actual production of most of the companies for 11 months and an estimate of the December output. The November figures for a few companies were not available, and these companies furnished estimates for the last two months of the year. According to the statistics and estimates received, the output of blister and Lake copper was 1,129,000,000 pounds in 1914, against 1,224,484,000 pounds in 1913.

The statistics and estimates indicate that the output of refined copper from primary sources, domestic and foreign, for 1914 was 1,493,000,000 pounds, compared with 1,615,067,000 pounds in 1913.

The production from Tennessee decreased somewhat from 19,489,000 pounds produced in 1913.

Lead Breaks Record in 1914.

The year 1914 was marked by an enormous increase in the output of domestic lead in the United States, according to C. E. Siebenthal of the United States Geological Survey, an increase of nearly 100,000 tons over the production of any preceding year. There was also a heavy decrease in the tonnage of lead of foreign origin treated in the United States, and for the first time in years a great increase in the quantity of domestic lead exported to European countries. At the same time the average price of lead in the United States was the lowest since 1898.

The production of refined lead, desilverized and soft, from domestic and foreign ores in 1914 was approximately 537,079 short tons, worth at the average New York price \$41,892,162, compared with 462,460 tons, worth \$40,696,480, in 1913, and with 480,804 tons in 1912. The figures for 1914 do not include an estimated output of 12,850 tons of antimonial lead, against 16,665 tons in 1913 and 13,552 tons in 1912. Of the total production, desilverized lead of domestic origin, exclusive of desilverized soft lead, is estimated at 312,257 tons, against 250,578 tons in 1913 and 221,480 tons in 1912, and desilverized lead of foreign origin comprised 25,295 tons, compared with 50,582 tons in 1913 and 88,577 tons in 1912. The production of soft lead, mainly from Mississippi Valley ores, is estimated at 199,527 tons, compared with 161,300 tons in 1913 and 191,614 tons in 1911, the largest prior output of soft lead. The total production of lead, desilverized and soft, from domestic ores was thus about 511,784 tons, almost 100,000 tons more than in any previous year and 25,000 tons more than the total output of the country from both domestic and foreign sources in any previous year.

The final figures of the production of soft lead are likely to show an increase of a few thousand tons over those here given, for the reason that the argentiferous lead smelters and refineries undoubtedly treated more or less soft lead from the Mississippi Valley which is not distinguished from silver-lead ores in their preliminary estimates. In any event, Missouri has undoubtedly retained first place in lead production, with the largest output in the State's history.

To Promote the Use of Concrete.

The report of the executive committee, John B. Lober, chairman, of the Association of American Portland Cement Manufacturers made at the recent annual meeting of the association, goes quite extensively into a discussion of profitable work for the promotion of the use of cement and concrete in which the association may engage in the next few years. The report suggests systematic distribution of literature among the students in colleges and universities, the operation of a complete information bureau, the emphasis of care in the selection and use of materials for the prevention of defective or inferior work in concrete building construction, co-operation with road engineers and inspectors to assure proper workmanship in concrete road building, the cultivation of the interest of farmers in the subject of the use of concrete on the farm, the suggestion of uses and methods of concrete construction in connection with railroads, the helping of municipal engineers in sewer work and the building of bridges, culverts, sidewalks and curbs, the codification of building laws, with the ultimate purpose of having every city in the country adopt proper regulations for cement construction, pub-

licity of the extreme value of concrete as a non-combustible material, the organization of a congress of concrete architects as a means of starting all members of the profession to thinking along concrete lines, and the advocacy of the use of concrete in leveeing the Mississippi River. The report says:

"The cement industry in this country has had phenomenal expansion. Even in times of financial depression we have had an increase in consumption. During the last few years large uses, such as are exemplified in railway and building construction, have been very materially curtailed. A glance at the increase in the number of small sales will clearly demonstrate this. Such increase is due to the general popularizing of concrete construction, brought about by the educational publicity campaigns carried on by the association and several of our individual companies. We are reaping today the benefit of farm campaigns started in 1910. Had it not been for our road campaign, started in 1911, the consumption of cement would certainly show a decrease under previous years. The future increase in consumption will depend directly on the amount of money the manufacturers of cement are willing to put into educational publicity work."

The Jones Step Furnace.

By C. HAFER of Candor, N. C.

Of extraordinary interest to the South is the Jones furnace that is now being developed in the Lake Superior iron region for the beneficiation of low grade iron ores.

This furnace metallizes the iron contents of the ore without melting, thereby avoids the fluxing of the accompanying gangue. Afterwards the metallic particles are recovered by concentration and worked into muck bar for the rolling mill. The original Jones furnace was practically a revolving cylindrical kiln, similar to that employed in burning cement rock.

The ore and fuel, cordwood or coal, was fed at one end, and the temperature was brought to 3000 degrees. The metallizing was effected by the gases of the fuel, and there was a by-product of coke or charcoal.

The principal fault with the original furnace was that at the high temperature all lining materials cut out rapidly under the abrasive influence of the moving mass of ore and fuel.

After a period of experiment the new furnace was evolved, and a plant has been recently erected and tried out in Marquette, Mich., with reported success, according to the technical press, as far as the details of operation are concerned.

The new plant consists of a revolving tube 60 feet long by 6 feet in diameter, which pitches toward the discharge end at the rate of three-quarters of an inch to the foot. It is elevated to a height sufficient for feeding by gravity the second unit of the plant, which is vertical and similar to the ordinary blast furnace, though it differs in essential particulars.

This unit is 30 feet high and 12 feet in diameter, is provided with tuyeres, and water-jacketed at the tuyer section. Only natural draft, however, is employed, and it is said that the internal design of the furnace is such that it is in effect a down-draft stack.

The ore and fuel are charged into the horizontal tube, in which a temperature of 2000 degrees is attained. A much higher temperature is reached in the vertical stack, and by reason of its being stationary the wear and tear in excess on the lining is avoided.

The product of the furnace, which is metallic iron enclosed in the matrix of the gangue, is drawn from the bottom into water carriages, and the contact with water breaks it to some extent. After further crushing, magnetic separators recover the iron, which is then ready to be worked into marketable condition.

What Is the Matter With America?

Chattanooga Industrial Board,

Chattanooga, Tenn., December 24.

Editor Manufacturers Record:

Are we at war? Are we sacrificing to the terrible God of Battle the lives that the God of Peace and Love gave us, that He might in His own good time accomplish the work of His hands?

"Why sit ye here all the day idle?" Forget Europe,

except in your prayers, your sympathy and your charity. Work, for as "God giveth His beloved sleep," so also does He give them work. Instead of "To your tents, Oh Israel," to your shops, your factories, your banks, your kitchens and your babies, Oh America!

CHAS. W. HOWARD.

DEEP WELLS FOR IRRIGATION.

Successful Installation in the Rice Fields of Louisiana.

Crowley, La., December 30.

Editor Manufacturers Record:

Layne & Bowler Company, with general offices at Houston, Tex., has just completed for Chacher & Evans, Opelousas, La., what it considers one of the best Layne rice irrigation plants it has ever been its good fortune to install. This plant is composed of a 10-inch well nearly 400 feet in depth; the well is completed with the Layne patent 11-inch shutter screen and equipped with a 70-foot steel pit and No. 6 Layne patent pump. The water stands 45 feet below the surface of the ground. This plant was tested with a 35-horse-power gear Scott skid boiler and engine (mounted on the boiler), using an eight-inch five-ply Gandy belt, and produced 2564 gallons of water per minute with the pump running 690 revolutions per minute. When the high lift, light power and belt is taken into consideration, the company feels that it is fully justified in feeling mighty proud of this plant. This opens up a bunch of new rice land for this State, and they are not worrying much up there about five-cent cotton for next year, as they will plant rice.

The heavy rains of the past six weeks have stopped the road building in this territory. However, the steel, etc., is on the ground for a new long steel bridge just north of here, and when the weather opens up road and bridge building will be pushed again.

The present fine price for rice is very encouraging, and quite a number of new irrigation plants will be completed between now and the pumping season. All the planters are buying the very highest grades of seed rice and doing their best to clean up their land and raise nothing but the higher grades.

In the cotton territory north of here they all talk of a very short cotton acreage for the coming year, and are putting in irrigation wells and expect to raise some rice. Most of the largest planters who are putting wells intend to allow each of their tenants to plant a small acreage of rice, very little cotton and heavy feed crops.

Layne & Bowler Company has just completed a very fine Layne irrigation plant for Doc Witherwax near Woodlawn, La., and expects to complete two more within the next 10 days, one of them being in a new territory.

This place has just completed the installation of its new Snow oil engine for electric-light and water-works plant. One of the Snow salesmen says that he has just sold a 110-horse-power Snow oil engine outfit to the town of Bunkie, La., for their electric-light and water-works plant.

L. G. FLOWER.

Cutting Biltmore Estate Lumber.

About 90,000 feet of hardwoods will be the daily capacity of the new mill of the Carr Lumber Co., Pisgah Forest, N. C., the plant being now about completed. Poplar, oak, chestnut, bass, birch, maple, etc., are included in the woods manufactured, all cut on the Biltmore estate. The company expects to be engaged for 20 years on this work, and it contemplates installing a planing mill and drykilns during 1915.

The Engineering Association of the South, at its annual meeting in Nashville, Tenn., elected officers as follows: President, Prof. Charles S. Brown of Nashville; vice-presidents, A. J. Dyer of Nashville and L. M. Thatcher of Atlanta, Ga.; secretary-treasurer, Harwell Allen of Nashville; director from the association at large, Hunter McDonald of Nashville. President Brown is of Vanderbilt University, and Mr. McDonald is chief engineer of the Nashville, Chattanooga & St. Louis Railway.

"BUILD NOW" AS APPLIED AT ROME, GA.



CITY HALL AND AUDITORIUM COMBINED.



AS ROME'S CITY HOSPITAL WILL APPEAR.

THREE PROPOSED REINFORCED CONCRETE BRIDGES AT ROME.

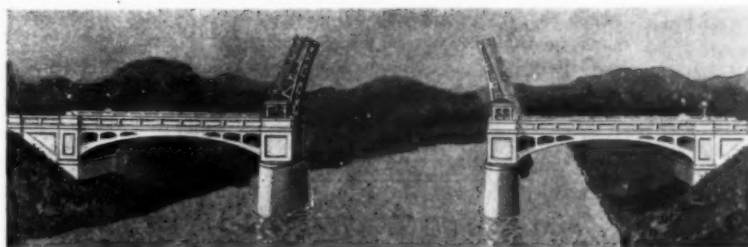


BROAD STREET.



EAST ROME.

Rome, Ga., is preparing to spend, as soon as funds become available, \$350,000 upon municipal improvements. At the urgent solicitation of the Chamber of Commerce the City Council has called an election for February 11 to vote \$100,000 of bonds, of which \$75,000, supplemented by \$25,000 proceeds from the sale of old courthouse, will be spent upon a new courthouse and auditorium combined, and \$25,000, supplemented by \$25,000 from Floyd county, will be spent upon a general hospital. J. E. Greiner of Baltimore and W. C. Spiker of Atlanta have been chosen by the Board of Roads and Revenues of Floyd county as consulting engineers for the construction of three



FIFTH AVENUE.

great bridges over the rivers in Rome to cost about \$200,000. Secretary H. A. Wheeling, of the Chamber of Commerce of the city, writes to the MANUFACTURERS RECORD that "these improvements are being undertaken in line with the position taken by the MANUFACTURERS RECORD of 'Build Now,' believing that such improvements can be made now more economically than will be possible in the next year or two." These improvements are to be made as far as practicable with home materials and home labor, and Secretary Wheeling believes that the beginning of this work will be the forerunner of a general building activity in Rome.

SEVEN OCEAN STEAMERS AT SAVANNAH LOADING \$3,000,000 OF COTTON FOR EUROPE.



At one time last month seven steamers were loading at the Seaboard Air Line terminals at Savannah, Ga., with cargoes of cotton valued at more than \$3,000,000 for European ports, a situation that helped to buoy the spirits of the people of the Savannah district. The accompanying view is of these vessels, whose names and destinations are as follows: Carolyn (American), for Bremen; Hermion (Norwegian), for Genoa; Hannington Court (British), for Genoa; Strahan (British), for Barcelona; King George (British), for Liverpool; Frankby (British), for Havre, and Sarmatia (Danish), for Copenhagen. An eighth vessel, Hohenfelde (German), had no definite time for sailing when the photograph of the group was taken. The credit for this export movement of about 75,000 bales of cotton is given to Henry Nanninga, head of the Henry Nanninga Company.

A NEW INDUSTRY FOR MARYLAND.

Formal Opening of the Plant of the Baltimore Roofing & Asbestos Manufacturing Co.

In celebration of the formal opening last Tuesday of the Baltimore Roofing & Asbestos Manufacturing Co.'s plant, which has been in operation for several months manufacturing asbestos and roofing products at Asbestos, Md., several hundred stockholders of the company and men identified with the banking and industrial interests of Baltimore and vicinity were conveyed to the plant by special trains from Baltimore, Westminster and other places for a day's inspection trip. The visitors were entertained by the officers of the company, and mid-day luncheon was served in the factory building.

Seeking to find an adequate water supply, which is necessary in the manufacture of asbestos products, and at the same time shipping facilities, the Oil City Asbestos Co. of Oil City, Pa., was induced to come to Maryland by Baltimore business men, where they secured a tract of land along the Patapsco River near Finksburg, on the line of the Western Maryland Railroad, 24 miles from Baltimore and 8 miles from Westminster. A reorganization of the company was effected and the Baltimore Roofing & Asbestos Manufacturing Co. was incorporated with R. M. Nichols, president; H. M. Nichols, vice-president; Charles R. Foutz, treasurer; William B. James, secretary, and O. R. Enigh, vice-president and general manager, the new corporation taking over and moving to Finksburg (now known as Asbestos) the Pennsylvania plant.

Twenty-two acres comprise the company's property at Asbestos, about one-half of this area being covered with buildings, the largest of which is a one and two-story reinforced concrete structure over 900 feet long by 45 feet wide, giving a floor space of over 145,000 square feet. Other buildings include a reinforced concrete power-house, an asbestos cement plant under construction and a refinery or laboratory for testing materials. The buildings were designed by John B. Hamme of York, Pa., and constructed by the company.

In the power-house, which is separate from the main factory building, is contained a battery of water-tube boilers made by the Oil City Boiler Works of Oil City, Pa., developing 1500 horse-power to supply power to a 500-horse-power Putnam engine manufactured by the Putnam Engine Co. of Fitchburg, Mass., driving an Allis-Chalmers generator manufactured by the Allis-Chalmers Manufacturing Co. of Milwaukee, Wis.; a 400-horse-power Westinghouse generator set manufactured by the Westinghouse Electric & Manufacturing Co. of East Pittsburgh, Pa., and a 50-horse-power Erie engine manufactured by the Erie Pump & Equipment Co., Erie, Pa., for running an auxiliary lighting system. To supply the large amount of water necessary in asbestos manufacture two large service pumps, manufactured by the Laidlaw-Dunn-Gordon Company of Cincinnati, O., are used for pumping water from the Patapsco River into a 30,000-gallon tower (erected by the Des Moines Bridge and Iron Works of Pittsburgh Pa.). A 1000-horse-power condenser pump manufactured by the Epping-Carpenter Company of Pittsburgh, and two boiler feed-water pumps are also located in the power-house. The power-house machinery was installed by George F. Motter of York, Pa.

All machinery in the main building is electrically driven by individual motors furnished by the Allis-Chalmers Manufacturing Co. from power generated in the company's complete power plant. The Baltimore Electric Supply Co. furnished the wiring, switches and other electrical equipment for the entire plant. Two Oswego cutting machines, manufactured by the Oswego Machine Works, Oswego, N. Y.; five paper machines, manufactured by Black & Carson, Hamilton, O.; 12 beaters, manufactured by the Valley Iron Works of Appleton, Wis.; two three-ply machines, manufactured by Allis-Chalmers Manufacturing Co.; three asphalt saturating machines and special asbestos paper machinery developed by Mr. Enigh, the general manager, who has had many years' experience in paper-making, are used in the manufacture of asbestos paper and mill board. Machinery similar to the asbestos paper machines for making rubber-surfaced roofing from wool felt and pure asphalt is also located on the first floor of the main building, together with the stockroom.

On the second floor is situated the company's offices and the manufacture of asbestos novelties is carried on. For the manufacture of these novelties, including asbes-

tos stove mats, asbestos table pads, etc., presses and cutters made by the Oil City Boiler Works, nine sewing machines from the Singer Sewing Machine Co. of New York, for sewing felt-covered table pads and other machinery, are used.

An asphalt still and heating tanks for supplying asphalt used in the manufacture of saturated asbestos and felt roofing are installed outside of the main building. Several dwellings have also been erected on the property for the use of the company's employees.

The company obtains its supply of asbestos fiber from Canada, which is shipped in trainload lots by water to Baltimore and then by rail to the plant. Among the "Bramco" brand asbestos and roofing products manufactured from this raw material are: Asbestos roofing, siding, shingles, building paper and sheathing, plaster and mill board, stove mats, packing, boiler and pipe coverings, stove linings and asbestos cements. Coal tar felts and wool and asphalt saturated felts are also manufactured by the company. The plant's capacity at present is three cars of roofing material and four cars of asbestos products daily, which is being distributed to all parts of the United States.

Eutaw Savings Bank.

The annual report of the condition of the Eutaw Savings Bank of Baltimore under date of December 31 shows funds on hand of the same date a year ago, \$28,036,302; received during the year from depositors, \$7,441,150; from interest and dividends, \$1,283,268; paid depositors during the year, including interest, \$8,111,082; funds on hand December 31, 1914, \$28,150,261; which is also the book value of the bank's assets, consisting principally of bonds and stocks owned, \$19,922,261; loans on mortgages, \$5,765,039, and cash in banks, \$2,180,000. There is due depositors, \$25,178,814; guarantee fund, \$1,800,000; undivided surplus, \$1,171,446, the latter being chargeable with nine months' interest on deposits. Number of account open 45,505, a net decrease of 303 during the year. Wm. M. Hayden is president, and Frank G. Evans, treasurer.

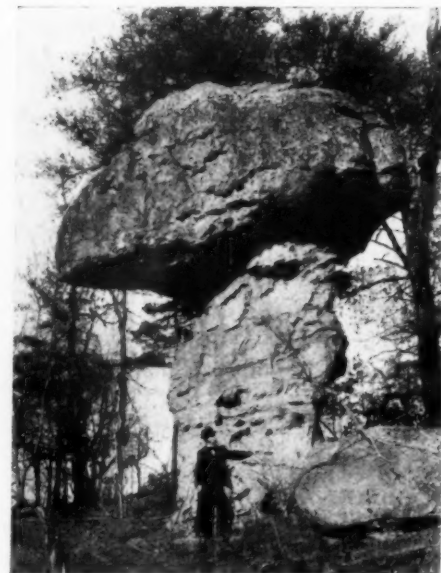
Central Savings Bank.

The Central Savings Bank of Baltimore has issued its annual report, covering its condition December 31 and showing funds on hand a year ago, \$10,230,797; received from depositors during the year, \$2,951,251; from interest and dividends, \$467,014; paid depositors during the year, including interest, \$3,445,738; funds on hand December 31, 1914, \$10,075,439; which amount is the book value of the assets of the bank, consisting mainly of bonds and stocks owned, \$6,495,254; loans on mortgages, \$2,259,695; loans on collateral, \$573,894; cash, \$503,591. The amount due depositors, including interest credited December 31, 1914, is \$9,169,874; guarantee fund, \$905,474. Number of accounts open 20,917, a net decrease of 402 during the year. Wilton Snowden is president, and J. Wilson Cole, treasurer.

Mercantile Trust Statement.

The Mercantile Trust & Deposit Co. of Baltimore has issued a statement of its financial condition at the close of business December 31, 1914, showing total resources of \$15,811,495, which includes loans on approved collateral, amounting to very nearly \$6,000,000; Baltimore city stocks, \$2,446,701; other stocks and bonds, \$4,498,252; cash, \$2,295,419. The company has deposits amounting to \$11,167,214; capital stock, \$1,500,000; surplus, \$2,700,000; undivided profits, \$429,855. A. H. S. Post is president; Wilton Snowden, J. R. Walker and Fred G. Boyce, Jr., vice-presidents; John McHenry, treasurer; T. H. Fitchett, secretary and assistant treasurer; C. I. Reynolds, assistant secretary, and Douglas Thomas, assistant treasurer and assistant secretary.

The Virginia Association of Real Estate Men has been organized with H. M. Magie, Waynesboro, president; R. H. Fredrickson, Blackstone, vice-president, and D. T. Kennedy, Kenbridge, secretary-treasurer.



MUSHROOM ROCK.

[Special Correspondence Manufacturers Record.]

Chattanooga, Tenn., December 31.

Mushroom Rock is the new and recently discovered object on Signal Mountain, of interest both to local people and tourists, bearing a striking resemblance to the now famous Umbrella Rock on Lookout Mountain. The new geological wonder was recently discovered by a party of trappers, and is only about an hour's tramp from the Signal Mountain Inn, which, with its colony of summer people, has become famous as a resort. Mushroom Rock—it really looks like a gigantic mushroom—will be the goal of many visitors, as both a trail is being cut and an automobile road will be built.

The "bulb" of the "mushroom" is 30 feet across and 10 feet thick. The "stem" is 18 feet high and 6 feet in diameter. The Mountain Land Co., which has charge of the development of that section, is preparing to erect to the top of the rock a steel ladder. It will also have the underbrush and trees immediately around the rock cleared away so as to give the "explorers" a clear view of the surrounding mountains. ROY G. BOOKER.

The Chamber of Commerce of Greenville, S. C., has issued a folder giving a list of the 56 mills, operating 1,886,870 spindles and 46,024 looms, with a capital of \$33,535,000, whose purchasing departments are at Greenville, the names of their presidents and their buyers and the list of their respective products.

Secretary Charles E. Welsh of the Builders and Manufacturers' Exchange of the District of Columbia, Washington, D. C., calls the attention of the MANUFACTURERS RECORD to the fact that his organization will establish scholarship classes for the study of the Spanish language.

The Board of Trade of Asheville, N. C., is circulating, with a pamphlet fully descriptive of the attractions of that region, a list of the places of interest in and near the city and of hotels and boarding-houses.

Shipments of zinc and lead ore from Missouri-Kansas-Oklahoma district in 1914 aggregated in value \$11,684,917, about \$2,000,000 less than the value of the shipments in 1913.

It is estimated by Bowman, Cost & Co. of St. Louis, Mo., that January interest and dividend payments in that city aggregate \$4,934,494.

The next annual convention of the American Cotton Manufacturers' Association will be held at Memphis, Tenn., in April.

GOOD ROADS AND STREETS

FOR A MEMORIAL NORTH AND SOUTH HIGHWAY.

The monthly pamphlet issued by the Packard Motor Car Co., in an enthusiastic article in favor of the Lincoln Highway, of which President Joy of the Packard Company is president, makes many statements which would apply with equal force to a North and South Highway. Every argument advanced for the building of the Lincoln Highway applies with equal force, indeed, we think with much greater force to the building of the highway suggested by the MANUFACTURERS RECORD between the North and the South. In the Packard Magazine article President Joy says:

"Rome extended the supple, handsome fingers of her marvelous roads and caressed into civilization regions where barbarians still drank from the skulls of their enemies.

"Good roads are the master servants of democracy. Feuds, tribal differences and suspicion of the stranger within the gates dissolve under the spell of good roads. Mexico's grievous dilemma and India's backwardness would vanish under their influence. Good roads are the sinews of commerce, which is the moving of commodities from where they are plentiful to where they are scarce.

"A good road is a monument to its builder. A mile of good road is a greater gift than a mile of golden statues. The road builder is the philanthropist par excellence. He helps people to help themselves. He paves the way to school, church, market and city. He pulls the feet of neighborliness out of the swamp of selfishness and provides them with mercurial sandals.

"A mile of good road is an imperishable gift to the future. The tendency of the times is toward monuments that breathe. Memorials are taking the vital form of coffee-houses, social settlements, hospitals, asylums, schools and colleges. But a mile of perfect highway, bestowed upon the centuries to come, constitutes a fundamentally constructive influence certain to gather cumulative force as the years sweep on.

"The Lincoln Highway, America's coast-to-coast thoroughfare, greatest of all the good-road projects the earth has ever felt girdling it, represents more than a mere highway. It is an instrument destined to sew up the remaining ragged edges of American sectionalism. It is paving the way to the more perfect civilization of tomorrow. And far from being a mere motor path for lovers of steering wheel and open road, the Lincoln Way has already begun to stimulate good-roads ardor to such a degree that the fretful problem of American distribution has already assumed a less austere aspect.

"The Lincoln Highway Association, with the dual object of extending the stimulation of co-operative good-roads effort, and of imparting further character and significance to the monumental memorial project, has set aside one thousand miles for dedication as unit memorials to men, women and organizations.

"This portion of the highway is in the West, where its prolonged mileage in sprawling, sparsely-populated States renders the completion and perfection of the highway difficult. To tax these States for the full cost would be impossible and unfair. The enlistment of outside help, based upon a plan to construct memorial miles, accordingly suggested itself to the officials of the association.

"A subscription of \$5000 establishes a memorial mile. Every such mile will be marked with an appropriate and enduring tablet now being designed by the American Institute of Architects, a body which comprises the most distinguished architectural minds in America.

"Already the unique plan is laying hold of the interest and imagination of public-spirited citizens. Even cities are coming forward to help. Canton, O., has sent its check for \$10,000 for the construction of two of these Western miles to be known as the 'Canton Miles.'

"To have added the link of a perfect mile to this wonder-chain of the world clothes the act of the philanthropist with all the color and tang of romance. There is a virile poetry, a big, epic swing to this unparalleled highway project. Men and women of vision and imagination, who love the useful garbed in the beautiful, and who, above all, thrill to the thought of helping smooth the gleaming ribboned road for generations and centuries to come, welcome the announcement of the dedication of memorial miles."

These things are all true, and the MANUFACTURERS RECORD gladly gives space to this commendation of the Lincoln Highway; but every statement made as to the value of that undertaking might be doubly emphasized as to the value of a highway between the North and the South to celebrate the fiftieth anniversary of a reunited country.

With the coming year we shall mark the fiftieth anniversary of the end of the war. What better means, what more potent influence for good, could be adopted for celebrating this fiftieth anniversary than the building of a highway which would indeed be a real highway from the North through the very heart of the South? From this great national highway would be built many shorter highways to open up the entire country tributary to it, and thus a mighty impetus would be given to this whole section.

The MANUFACTURERS RECORD is glad to note that the Governor of Indiana has called a meeting at Chattanooga on January 11 of the Governors of Florida, Georgia, Kentucky, Tennessee and Illinois to devise a plan for the co-operation of these States in building an automobile improved highway from Chattanooga to Jacksonville. This action of the Governor of Indiana is worthy of all commendation. The highway from the West through the South ought to meet the highway from Washington to the South, and the two become a part of one great effort for the construction of roads uniting the West and the South and the North and the South.

But let no one imagine that such things can be accomplished without broad work and liberal expenditure. These highways should not be cheaply constructed. On the contrary, they should be real highways, built in the most substantial manner, with the best engineering skill and the best form of construction that can be devised. They ought to be worthy of the sections they are to unite. Every business man interested in the building of roads from every point of view, whether that of the welfare of the country or of his own individual activities, should join heartily in the effort to bring about the building of these two roads. Their construction would mark an era in the building of highways throughout the entire South, and their value to this section and to the whole country would be beyond calculation.

Bearing upon the North and South Highway are the following letters called forth by a recent editorial in the MANUFACTURERS RECORD.

Col. Bennehan Cameron of Stagville, N. C., now a member of the North Carolina Legislature, and long an advocate of the Quebec-Miami highway, writes:

"I was much pleased with the editorial, 'A National North and South Highway.' I agree with you in every particular. It would indeed be a very great thing, in the development of this country, to secure such a highway, and of such a character as you propose built. The Lincoln Highway, as you say, is all right. But, as you further say, the East and West were never separated. It is the North and South that should be bound together at the lapse of half a century. Just after we organized the 'Quebec-Miami International Highway,' at Richmond, Va., in 1911, it was thought it would take twelve or fifteen years to build it. But you can now go all the way, excepting a few gaps. The portion between Richmond and Washington we knew would be the most difficult to build, as that country was devastated by war and had not recuperated, and there was but one town of any size in it—Fredericksburg—yet it was the richest section in historic interest. Therefore, I thought it exceedingly appropriate that this section should be the 'Lincoln Memorial,' and accordingly I worked to that end. But President Taft and his associates voted for the Greek Temple in Washington. Then the Western people started the Transcontinental Highway as the 'Lincoln Highway.' I still believe your idea and view were correct. Failing to get that appropriation of Congress applied in this way, instead of to the Greek Temple, we then went to work to do what we could without the appropriation. The generous citizens of Richmond went down into their pockets and contributed about \$100,000, while the Washington people would give us nothing. For they are so in the habit of having the Government do everything for them they did not seem disposed to aid. 'Let the Government or States

build it.' However, we got the counties along this line to vote bonds; so it will soon be in a condition to use.

"Then, when we organized the Southern National highway, I moved that we start from Washington, the Capital of the nation, and go down over the Quebec-Miami International through Richmond, the Capital of the Confederacy, to Durham, the Capital of the Tobacco World, and then west over the Central Highway of North Carolina to the Tennessee line and on to Memphis; then crossing the Mississippi River, through Little Rock to Dallas, to El Paso, to Phoenix and to San Diego. Then when the Bureau of Public Roads of Washington proposed to establish a division for 'maintenance,' I urged them to use the route south from Washington; for by doing so the route from Washington to Durham would then serve both the Quebec-Miami and the Southern National. Then I helped to buy those automobiles for the use of the Government engineers to use in going over the line monthly to look after their patrols, who go over their divisions daily and make daily reports. And we got the counties along the line to contract with the Government to turn over the cost of maintenance to the Government.

"Thus we have done quite a bit along the lines of your suggestion. That portion of the road from Durham to Richmond was so very good that we had more than 100 automobiles to go to Richmond on Thanksgiving Day to see the football game between the Universities of Virginia and North Carolina.

"A plan for a 'Peace Memorial' that I offered was adopted by the International Peace Conference, as the Canadian people voted for it unanimously. For the Southern National Highway connects both the Quebec-Miami Highway and the Pacific Coast Highway, over which these Peace Memorials are to be placed on the International boundary line. Thus the three together, in their sweep down through Dixie, will form the longest road in the world from Quebec to Vancouver down through Durham and Dixie.

"Then there is to be a branch line from Salisbury, N. C., to Charlotte, Atlanta, Montgomery, New Orleans, Houston, San Antonio to El Paso, where the two routes come together again. Thus you see our ideas come together again, as you propose a route to New Orleans. The Southern National Highway was selected by a convention of all the Southern States, voting by Congressional representation, showing it to be the choice of the people of the South by the most equitable vote that could be taken. I personally think that we should get Congress to aid in developing these great routes as really national roads. That would accomplish your purpose, but by different means.

"Mr. W. O. L. Westgard, the official pathfinder of the American Automobile Association, says of the Southern National Highway: 'The route from El Paso to Texarkana, through Alamogordo and Roswell, New Mexico, Bronco, Sweetwater, Fort Worth and Dallas, is along much higher altitude than any of the more Southern routes, and is therefore more comfortable traveling in hot weather. It also has surprisingly good roads for the greater part of the way. Despite occasional short stretches on this run of 994.2 miles across Texas from the Rio Grande to the Red River, it is one of the most interesting and instructive tracts of its length in the United States.'

General Julian S. Carr, Durham, N. C., writes:

"I read the article in the MANUFACTURERS RECORD with a great deal of pleasure—'A National North and South Highway'—and I endorse every suggestion it contained. It was delightful reading, patriotic, broad-gauged and wise, and I would love to see the suggestions contained therein adopted. Let the great Lincoln Highway run North and South rather than East and West. It occurs to me that the suggestions naturally carry the road North and South—all sentiment clusters around that suggestion, North and South, and the more I study the matter the more the idea obsesses me, and I have grown enthusiastic over it. I hope the voice of your great journal will be heeded and your suggestions carried out."

Col. Fred A. Olds, Raleigh, N. C., writes:

"A hundred years ago the great post road between New York and New Orleans ran through Raleigh. It is, as you say, the natural course. A splendid road can be built of sand-clay, the best material, for \$1000 a mile, including bridges. Sand-clay roads here in Wake county cost, say, \$750 a mile. Farther to the southward they are cheaper still. An investment in a road, a great highway, uniting the for-a-time-divided sections

would have a distinction as a binding force which no railway can have, because of the fact that a railway is impersonal while a highway has a personal aspect and 'touch.' I know Mr. Tufts is pleased with the editorial in question. You have done a vast deal for the South. Your paper is a power for good. The real highway is the greatest need of this section. The continued pressure is making for greater things. Only last week Chatham county voted road bonds, and for the 'missing link' in the very highway you have so clearly in mind."

Mr. Leonard Tufts, Pinchurst, N. C., writes:

"I read your article with the greatest interest, and the suggestion is certainly timely. Arrangements have been made for the road, as far as I know, from Atlanta to Washington, with the exception of about eight miles in Virginia between Fredericksburg and Washington. The people of Richmond subscribed \$50,000 to assist in the construction of this road between Richmond and Washington, with the understanding that Washington was to add a like amount. Washington has never subscribed a cent toward this work, as I understand it. Mr. Coleman, State engineer of Virginia, tells me that it would only cost about \$22,000 to finish the road by another fall from Washington to Richmond. This short stretch goes through the corners of some counties, and the construction of the road would be of no benefit to the counties themselves. It has been my intention to go to Washington and see if I could not stir up some interest in the subject there. A personal interview seems to be the only way to get at the subject. If we can only get a road from Washington to Florida that a man can get over for 12 months in the year the road would be improved rapidly, in my opinion, as those who are motoring down would criticize the bad sections to the people in the section and praise those sections that are good. Until, however, this eight miles in Virginia is put in passable condition, it is not advisable to suggest to anyone that they could motor down. I am not at all in favor of building concrete roads through poverty-stricken sections, such as proposed by the Lincoln Highway Association, as this is not an example which the sections can follow. I believe first that each section should build its own road, and second, that the construction of the road should be such as to be applicable to the rest of the section."

Mr. George W. Watts, Durham, N. C., writes to the MANUFACTURERS RECORD:

"I heartily endorse the desirability of the construction of such a highway, but I very much doubt its feasibility unless it can be done through State or National aid. I can think of no one in the South that would take a large financial interest in such a project. We of the South are so dependent upon the Government that we do not like to spend our own money."

SOUTHERN HIGHWAY ACTIVITIES.

Details of Week's Progress in Improvements in City and Country.

Further details of road and street undertakings and bond issues mentioned below are given under the headings Construction Department and New Securities, published elsewhere in this issue.

The MANUFACTURERS RECORD invites from its readers information about road and street work projected or under way, photographs of good roads and discussions of matters pertaining to the betterment of the highways of the South.

Bonds Voted.

Collins, Miss.—Covington county issued \$16,000 bonds to construct roads.

Dayton, Tenn.—Rhea county will sell \$250,000 bond issue and arrange to construct roads.

Paris, Tex.—City voted \$100,000 bonds for street improvements.

Bonds to Be Voted.

Macon, Ga.—City votes March 4 on \$100,000 bonds to pave streets; property-owners to pay two-thirds of cost, making total expenditure \$300,000.

San Benito, Tex.—City votes February 2 on \$3000 bonds to improve streets.

Contracts Awarded.

Baltimore, Md.—City awarded \$4518.80 contract for 1880 square yards of vitrified brick paving.

Baltimore, Md.—State awarded \$61,508 contracts for street paving and constructing boulevard.

Bonham, Tex.—Fannin county awarded \$66,488.42 contract to construct 14 miles of roads.

Dallas, Tex.—City awarded \$13,603 paving contract. Fort Worth, Tex.—City awarded \$235,000 contract for 100,000 square yards asphaltic concrete paving.

Galveston, Tex.—City awarded \$3013 contract to pave alleys with brick.

Mt. Pleasant, Tex.—City awarded contract to pave 10 blocks with Oklahoma rock asphalt; cost about \$30,000.

Norfolk, Va.—City awarded \$2116 paving contract.

Covington, La.—St. Tammany Parish Police Jury awarded \$24,068 contract to construct road.

Contracts to Be Awarded.

Baltimore, Md.—State receives bids until January 19 to construct about 10.56 miles, five sections, State highway.

Catonsville, Md.—Schatz Bros. will construct 2000 square yards cement sidewalk and 10,000 square yards of macadam streets.

Craftsville, Ky.—J. J. Brady will build three miles of roadway.

Jacksonburg, W. Va.—Wetzel county receives bids until January 9 for 1500 feet of road construction and 1436 cubic yards of excavation.

Mission, Tex.—City invites bids on 18,000 linear feet of cement sidewalks, gutters and curbing, estimated to cost \$30,000.

Savannah, Ga.—City appropriated \$50,000 for street paving during 1915; this amount to be supplemented by \$100,000 from property-owners.

Paducah, Ky.—McCracken county will widen road to 100 feet and extend four miles.

Richmond, Va.—Richmond-Washington Highway Corporation will arrange to finish 12 miles of uncompleted highway.

For Skilled Supervision of Roads.

A concerted movement for skilled supervision of road work throughout the United States has been launched by the American Highway Association and the National Civil Service Reform League. These two great organizations co-operated in the holding of a session at the recent American Road Congress in Atlanta, devoted to a consideration of the merit system in road management. The United States Civil Service Commission was represented by Chief Examiner George R. Wales, who pointed out the manifest advantages of competitive qualification tests as a requisite for appointment to office. To combat the rather general impression that competitive examinations in all cases mean the answering of stereotyped technical questions, Mr. Wales said:

"For these high-grade positions, where men of experience and attainments are needed, an examination is given which does not require the competitors to assemble at any place or to answer technical questions. They are called upon to furnish, under oath, a detailed statement of their education and experience, including all the work they have done since graduation. They may also be asked to submit an original thesis or report or published works, and they are required to give the names of persons able and competent to testify as to their experience and personal fitness. Confidential inquiry is made by the Commission from various sources as well as of all persons referred to by the applicant. Gratifyingly accurate and discriminating testimony is obtained by this means of confidential communication. Such testimony approximates, if not equals, the testimony adduced upon cross-examination in judicial proceedings. A demonstration of the ability of the competitive system to obtain high-class men for technical positions has been made within the past year, in connection with the employment of men to appraise the value of the property or common carriers in the United States. For this work the Interstate Commerce Commission required men with qualifications ranging all the way from rodman and chainman to senior positions in civil, mechanical, structural, electrical and architectural engineering, as well as motive power men and expert accountants. There have been approximately 15,000 applicants for these positions, and the task of sifting the wheat from

the chaff and of grading the wheat after the sifting was one of considerable magnitude; but it was done, and it was done so well that the I. C. C. expressed its gratification to find that it could secure a force so well equipped to perform the gigantic task of obtaining an accurate appraisal of the value of common carrier property. A system which can successfully secure a competent force of high-grade engineers for this valuation work could surely provide the proper kind of men to have charge of the construction and maintenance of public highways."

It is anticipated that steps will be taken to wage an active campaign in every State for the elimination of the spoils system and to substitute for it the merit system.

Bargains in Bids for Roads.

Illustrating the contention of the MANUFACTURERS RECORD that now is a most opportune time for the undertaking of public work of all kinds is the showing made in the opening of bids by the State Roads Commission of Maryland last Tuesday. "Maryland is getting some tremendous bargains in roads" says the Baltimore Sun, in referring to the matter, and it adds:

"Never since the State embarked on the good-roads enterprise have bidders been so hungry for contracts, and never have there been so many bidders for each contract advertised. Bids for six pieces of work were opened. Two were for pieces of gravel road in Charles county, and in a section where it was impossible to secure bidders when the present commission came into office. One of these pieces of road is a stretch of 5.32 miles from La Plata to Ripley on the road to Indian Head. In 1912 it was impossible to secure a bidder for a stretch of this same road, and the following year, after advertising for bids and getting none, the commission was compelled to build the road by force account. There were 11 bids for the La Plata-Ripley stretch. These were Ross Bros. of Roanoke, Thomas Mullan of Baltimore, Luck Construction Co. of Roanoke, H. S. Swann of La Plata, William P. McDonald Construction Co. of New York, Juniata Paving Co. of Philadelphia, Winston & Co. of New York, McNeerney Construction Co. of Canton, Pa.; Betts & Boice of New York, W. H. Allen Construction Co. of Washington and the Harper & Voight Construction Co. of Washington.

"For the other piece in Charles county, 1.91 miles from Bel Alton to Lothair, there were six bidders—the Luck Construction Co., Winston & Co., Juniata Paving Co., the McDonald Company, H. S. Swann and Betts & Boice.

"For the resurfacing of the old National Pike, east from Cumberland to the Nave's Farm road, 1.65 miles, a piece of work for which it has heretofore been impossible to secure bidders, the Luck Company and Winston & Co. indicated their desire for the work by submitting attractive bids.

"Five contractors submitted bids for rebuilding a part of the Emmitsburg pike, 1.25 miles north to the Pennsylvania line. This is to be of macadam. The bidders on this piece of work were the Bamberger-Chapman Company of East Orange, N. J.; M. J. Grove Lime Co. of Limekiln, Md.; Bester-Long Company of Hagerstown; Thomas, Poole & Hunter of Westminster, and the Juniata Paving Co.

"Six bidders contested for the little contract of building through the incorporated town of Northeast, in Cecil county. This is only approximately half a mile, but it will fill in the only gap in the good road direct from Baltimore to Philadelphia via Wilmington. These bidders were W. C. Evans of Ambler, Pa.; Juniata Paving Co., A. C. Shand of Philadelphia; E. Ward Brown of Port Deposit; H. B. Sproull of Peckskill, N. Y., and the Chesapeake Construction Co. of Preston, Md.

"A reinforced concrete bridge is to be constructed at the milldam at Allen, on the border between Somerset and Wicomico counties, and for this there were two bidders, McNeerney & Co. and Winston & Co."

A \$235,000 Asphaltic Concrete Contract.

Asphaltic concrete paving to the extent of 100,000 square yards will be laid in the packing-house district of Fort Worth, Tex., that city's officials having awarded the contract at \$235,000. The Roach & Manigan Paving Co. of Memphis, Tenn., received this award, and is allowed one year for completing the contract.

RAILROADS

[A complete record of all new railroad building in the South will be found in the Construction Department.]

NEW TERMINAL AT JACKSONVILLE.

Atlantic Harbor Railroad Co. Has Broad Plans for Development.

A new terminal railroad enterprise is being developed at Jacksonville, Fla., where notice has been formally given of intention to apply for a charter for the Atlantic Harbor Railroad Co. on January 15, the purpose being to construct a line and branches from Fort George Island, on the St. John's River, northerly across Sisters Creek and thence westerly to or near Plummer, on the Georgia Southern & Florida Railway, altogether about 30 miles. The capital stock is to be \$50,000, but the company may incur debt to the amount of \$5,000,000. The motive power for the railroad has not yet been selected. The charter requested gives the company the right to use any power chosen which may be allowed under the laws of Florida.

The incorporators are Alfred H. Brodrick, president of the Boston-Chadwick Lead Co., and Gardner Washburn, 50 Congress street, both of Boston, Mass.; George J. Percival of Atlantic City, N. J.; W. M. Wright of St. Augustine, Fla.; Ernest G. Finney, J. Miller Wilson, R. G. Ross, P. D. Cassidey and Francis B. McGarry of Jacksonville. Mr. Percival is president; Mr. McGarry, vice-president; Mr. Wright, secretary, and Mr. Cassidey, treasurer. These temporary officers may be changed at the meeting for organization January 12. The charter requested is very broad, and would permit the company to do anything that might be necessary to the successful conduct of a terminal warehouse, dock, wharf and railroad business. The main terminals are to be on Fort George Island. Application has already been made to the War Department at Washington for permission to build the railroad bridge over Sisters Creek. W. H. V. Williams is mentioned as being most active in promoting the place. Ellis, Curtis & Kooker of Jacksonville are the engineers.

Headquarters for the company will be in Jacksonville.

THE NEW MEMPHIS BRIDGE.

Financial Efforts Being Made to Insure Resumption of Work on It.

Efforts are being made to finance further construction on the new bridge over the Mississippi River at Memphis, Tenn., according to a report from there. About \$2,000,000 has already been expended in building the piers, etc., and much of the steel superstructure has been prepared by the manufacturers. Work on the bridge was halted by the general disturbance of financial conditions which has prevailed for some months, and now that there is an improvement in the outlook, steps have been taken to obtain money to resume its erection.

The bridge is being built by the Arkansas & Memphis Railway Bridge & Terminal Co., and the general contractor is the Union Bridge & Construction Co. of Kansas City. The Rock Island lines, the Missouri Pacific system and the St. Louis Southwestern Railway are interested in the enterprise. The bridge is named for the late J. T. Harahan of Chicago. It will be not only a double-track railroad bridge, but will have a roadway for wagons, carriages and other highway vehicles. It is hoped to soon be able to dispose of the bonds, which will take the place of notes hitherto issued for the first financing of the plan.

St. Louis to Terre Haute.

It is announced at St. Louis that the Springfield & Central Illinois Traction Co., of which Isaac A. Smith, 552 Catalpa street, is president, propose to build an interurban electric railway from St. Louis to Terre Haute, Ind., about 185 miles, and will probably begin construction of the first 25 miles between St. Louis and Newton, Ill., early next summer. It is stated that 60 per cent. of the first issue of bonds, \$2,500,000, was

underwritten in England before the war began, and it is hoped to complete the underwriting by spring. The total of authorized bonds is \$20,000,000, with stock of the same amount, according to Illinois charter. Right of way has been obtained for the main line; also for a cross-line from Springfield to Duquoin, Ill. Entrance to St. Louis will be over the municipal bridge and the municipal loop line. George W. White is vice-president; A. C. Skillman, secretary, and N. E. McMillan, treasurer. Mr. Smith recently returned from England, where he was engaged upon arrangements for financing.

Buckhannon & Northern Completed.

The Buckhannon & Northern Railroad Co., Fairmont, W. Va., says a report from there, has authorized its merger with the Monongahela Railroad, of which its road is really an extension. The new line, which begins at the Pennsylvania-West Virginia boundary, where connection is made with the Monongahela Railroad, has been completed to Rivesville, W. Va., 32 miles, for some time, but it is now extended by what is known as the Pricketts Creek Branch to Fairmont, five miles.

As is indicated by its name, the Buckhannon & Northern may be extended farther south to Buckhannon, W. Va., the county-seat of Upshur county. It is peculiarly a coal line, and is controlled by the Pennsylvania Railroad and the Pittsburgh & Lake Erie Railway, the latter being part of the New York Central system. These railroads connect at Brownsville, Pa. Several large tracts of coal lands are to be developed in West Virginia. J. J. Turner is president of the Monongahela Railroad; J. M. Schoonmaker, vice-president; Lewis Neilson, secretary; John G. Robinson, treasurer, and G. B. Obey, superintendent.

New Equipment, Etc.

Nashville, Chattanooga & St. Louis Railway has ordered from the Baldwin Locomotive Works, Philadelphia, 6 Pacific type and 10 Mikado type engines.

Pennsylvania Railroad has invited bids to furnish 17,600 tons of bridge steel. The company is furthermore getting prices on 170,000 tons of rails for delivery this year.

Atchison, Topeka & Santa Fe Railway has ordered another 100 tank cars from the Pressed Steel Car Co., Pittsburgh.

Louisville & Nashville Railroad has ordered 38,000 tons of rails from the Tennessee Coal, Iron & Railroad Co., Birmingham.

A. S. Anderson, attorney-at-law, Millen, Ga., wants to purchase six miles of rails and a locomotive on long terms, secured by mortgage on road.

Kanawha & Michigan Railway has received 5 steel passenger coaches from the American Car & Foundry Co.'s plant at Jeffersonville, Ind. They have six-wheeled trucks and are lighted by electricity.

Will Sell Stock and Finish Road.

J. Ellis Walker, Rolla, Mo., general manager of the Rolla, Ozark & Southern Railway Co., says that the Public Service Commission of Missouri has authorized the company to issue \$200,000 of stock and \$150,000 of bonds. It has about \$73,000 of work done and wishes to sell about \$100,000 of stock, which it thinks will complete the road. There is only one class of stock. The company does not intend to sell the bonds.

The railroad which is being constructed is from Rolla to Annett, Mo., 18 miles, which includes two bridges over Dry Fork Creek. It will connect with the Frisco system at Rolla. Headquarters are at Rolla. E. C. Comstock is president; E. W. Walker and F. W. Webb, vice-presidents, the latter being also treasurer, and John M. Southgate, chief engineer.

Birmingham Yards in Use.

On January 3 the Southern Railway put in use the first unit of the Finley Yards at Birmingham, Ala., the work thus far completed having cost, including the site, about \$1,500,000. The tract of land, 110 acres, for the yards was bought in 1906, but construction was not

begun until last summer. Now there are finished 30 miles of tracks, a roundhouse of reinforced concrete and brick with 25 stalls, a coal storage and weighing bin of 1000 tons capacity, a 100-yard sand dryer, a bathhouse, yard offices, etc. During the year the company acquired 60 acres more of land adjoining the yards, and on this it is contemplated to erect shops.

Western Maryland Earnings.

The report of the Western Maryland Railway for November shows revenue \$634,111, decrease as compared with the corresponding month of last year \$18,709; total expenses \$492,548, decrease \$121,015; net revenue \$141,563, increase \$102,306; operating income after taxes, \$116,063, increase \$97,806.

For the five months ended November 30 the total revenues were \$3,559,358, decrease as compared with the corresponding period of last year \$74,935; total expenses \$2,621,007, decrease \$306,723; net revenues \$938,261, increase \$291,793; operating income after taxes \$814,761, increase \$268,793.

Monroe & Texas Railroad.

The Monroe & Texas Railroad Co., capital \$40,000, which may be increased to \$200,000, has been chartered to build a line from Monroe, La., southwest to the Sabine River, 115 miles, through Ouachita, Jackson, Winn, Natchitoches and Sabine parishes. Branches may also be constructed and an extension outside of that State may be made. Means of water transportation may likewise be operated. The directors include F. R. Pierce, president; L. Brandt, vice-president; G. L. Chesboro, secretary; A. R. Pierce, treasurer; W. B. Ayars, J. A. Dewes and R. L. Curtis.

COTTON ACREAGE FOR 1915.

Absolutely Necessary for It to Be Regulated by Business Men.

Union Trust Co.,

Little Rock, Ark., December 30.

Editor Manufacturers Record:

The business outlook in the South is so absolutely dependent upon the amount of cotton raised that it is incumbent upon every business man to exert his utmost influence toward regulating the cotton acreage for the year 1915. This language is used by many every day until it has become commonplace. People say the words and pass on without doing anything. But the condition is real, and demands general realization and then certain action.

The war has made the cotton situation both a vital emergency and a vital opportunity. The emergency arises from the fact that we have staked all upon cotton. We do not even raise a living. The opportunity follows naturally the demonstration that no agricultural country can specialize to the extent of buying its living to produce the specialty, and the further fact that the restriction in foreign production affords the opportunity of easier making markets for diversified Southern production.

We should realize that despite our best efforts cotton will be plentiful, the demand limited and the price correspondingly low in 1915. The acreage will undoubtedly be reduced, but not enough, even with our best efforts. The habit is too strong to change suddenly. It is the only working system that we have. The European consumption will continue small.

There need be no fear of the South not raising enough cotton in all future years. Based on past experience after similar times of distress, there is a reasonable fear that it will get back to cotton alone after the first revival or two. This would be ruinous to its opportunity. It must always raise its living, as it easily can, and it must experience other forms of agriculture and livestock raising, which can be made so profitable as part of an enduring cycle of production.

Arkansas has just finished a State-wide, house-to-house agricultural campaign. The plan was definite, practical and successful. The idea could be applied to other Southern States. We would be glad to answer inquiries.

MOOREHEAD WRIGHT,
Vice-President and Treasurer.

TEXTILES

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

ADDITIONS TO SOUTHERN SPINDLES.

Total for 1914 Is 220,911 Spindles and 2066 Looms, an Investment of \$5,522,775.

During the year 1914 the Southern cotton manufacturing industry continued to progress, and many thousands of spindles, with their accompanying looms in some instances, were installed by established enterprises and companies organized for the construction of mills. The last quarter, comprising the months of October, November and December, shows a total of 23,000 spindles announced for installation, this record being an improvement over the preceding quarter of last year. These 23,000 spindles were divided into 3000 for a new company and 20,000 for additions to three established mills, besides which there was organized a \$500,000 company (the Hillside Cotton Mills of Lagrange, Ga.) which has not as yet announced the number of spindles and looms for its equipment. Approximately \$575,000 will be the amount of the investment for the 23,000 spindles, with accompanying machinery and buildings. The second quarter of 1914 presented the best showing for the year, 102,484 spindles and 1016 looms having been announced during April, May and June, requiring an investment of \$2,562,100. This amount was divided into \$617,400 for 24,696 spindles and 120 looms, the equipments of five new companies, and \$1,944,700 for 77,788 spindles and 896 looms, the installations of twelve companies adding to their facilities for cotton manufacture. The greater part of the installations are continuing to be additions to existing mills, thus emphasizing the confidence of Southern cotton manufacturers in their section as a location for mills to spin and weave the staple produced in the cotton-growing States.

Totalling the announcements of the entire year 1914, it is seen that 220,911 spindles and 2066 looms were arranged for, the estimated investment being \$5,522,775 for all this machinery, with accompanying equipment and buildings. This total comprised an investment of \$1,730,000 for 60,200 spindles and 750 looms in new plants, and \$3,792,775 for 151,711 spindles and 1316 looms added by established companies. The great proportion in favor of the enlarging plants is readily seen. The record of 1913, of interest in comparison with last year's results, was as follows: 327,857 spindles, 4036 looms and a \$8,196,420 investment; this was divided into 246,257 spindles and 2656 looms, a \$6,156,425 investment for the increasing mills, and 81,600 spindles, with 1380 looms, a \$2,040,000 investment, for strictly new organizations. During 1912 there were announced 628,252 spindles and 11,221 looms, a \$15,706,300 investment.

Southern cotton manufacturers are continuing their interest in the production of finer grades of cloth and in the introduction of electricity for power purposes, nearly all mills nowadays being built for the electric drive when electricity is obtainable at low rates, and especially from water-power developments.

The announcements of October, November and December are summarized as follows:

Georgia.				
Name.	Location.	Spindles.	Looms.	
Hillside Cotton Mills.....	Lagrange.....	.....	.....
North Carolina.				
*French Broad Manufacturing Co.....	Asheville.....	5,000	.....
Robinson Manufacturing Co.....	Charlotte.....	3,000	.....
		8,000	.....
South Carolina.				
*Whitney Manufacturing Co.....	Whitney.....	13,000	.....
Tennessee.				
*Sylvan Cotton Mills.....	Shelbyville.....	2,000	.....
Total for first quarter of 1914.....		75,703	954	
Total for second quarter of 1914.....		102,484	1,016	
Total for third quarter of 1914.....		19,724	96	
Total for fourth quarter of 1914.....		23,000	.....
		220,911	2,066	

*Established mills enlarging.

An important organization announced a few weeks ago is the Hillside Cotton Mills of Lagrange, Ga. This company is capitalized at \$500,000, and may increase this to \$1,000,000 before determining final details of its

mill, for which plans and specifications are being prepared. It will build a mill to manufacture cotton specialties said to have been supplied by German and English mills previous to the great European war now in progress. Fuller E. Callaway is treasurer and general manager, he and his associates in several other big mills having formed the new company. All the capital was subscribed at Lagrange.

The 1914 announcements of mills and enlargements now approaching completion included the following:

Revolution Cotton Mills, Greensboro, N. C.; addition for which about \$1,250,000 is being invested. Between \$400,000 and \$500,000 is being expended for buildings and about the same for machinery, with accompanying equipment and improvements. About 40,000 spindles, 1100 to 1200 looms, 200 cards, etc., will be installed for a daily production of about 1200 pieces of cotton goods. The two main buildings are 530x130 and 470x130 in dimensions.

Clinchfield Manufacturing Co., Marion, N. C.; 26,000 spindles, 600 looms, etc., for a daily capacity of 28,000 yards of cotton cloth. This \$800,000 corporation has invested about \$400,000 for machinery, not including a \$40,000 steam-power rope-drive equipment. Its two main buildings are three stories high, 356x132 feet, and one story high, 100x100 feet, costing about \$150,000.

Flint Manufacturing Co., Gastonia, N. C.; 133x100-foot additional building costing about \$34,000. This structure is being equipped with 11,520 spindles and accompanying machinery to cost about \$49,000, the additional facilities being for the purpose of enabling the company to cease spinning at night.

Whitney Manufacturing Co., Whitney, S. C.; additional structure to cost about \$40,000, and it will be three stories high, 180x102 feet. This building has a capacity of 13,000 spindles.

Some large and important mills and additions announced during 1913 and 1914 were completed last year. They included the following:

Erlanger Cotton Mills, Lexington, N. C.; \$600,000 plant of 25,000 spindles and 686 looms to produce cotton cloth for manufacture into men's underwear. This latter product will be made in the New York and Baltimore factories of Erlanger Bros., who built the Erlanger mill. This mill will be enlarged during 1915, at a cost of about \$400,000 for buildings and machinery, to include 15,400 spindles and 420 looms.

National Yarn Mills, Belmont, N. C.; one-story 600x200-foot building, with equipment of 12,000 spindles and accompanying apparatus, driven by electric power, to manufacture Nos. 60 to 90 fine yarns. The company is capitalized at \$500,000.

Crystal Spring Bleachery Co., Chickamauga, Ga.; \$600,000 plant with daily capacity of 50,000 yards of cloth for manufacturing cotton bags. It has 20,160 spindles, 700 automatic looms, etc., driven by electricity from a 1000-kilowatt steam turbine equipment.

Kershaw Cotton Mill, Kershaw, S. C.; 10,000-spindle and 500-loom plant for manufacturing fine white goods. This \$200,000 company erected a 505x128-foot main building and other structures in order to provide facilities for its purposes.

Greenville Cotton Mills, Greenville, N. C.; \$100,000 plant for manufacturing hosiery yarns. This company has a 316x80-foot mill building, a 100x75-foot storage warehouse, etc.; a 200-horse-power steam plant, 5000 spindles, etc.

Patterson Manufacturing Co., Kannapolis, N. C.; additional building and equipment of 10,000 spindles,

etc. Its new structure is 240x78 feet, two stories high, equipped with spinning machinery and accompanying apparatus.

Clinton Mills Co., Emporia, Va.; mill for production

of cotton cloth to be consumed by Ayvad Manufacturing Co., Hoboken, N. J., in manufacturing this latter company's specialty swimming device. The Clinton building is 500x61 feet, costing about \$50,000, and is equipped with 5000 spindles, 100 looms, electric power drive, etc., costing about \$70,000.

Swift Spinning Mills, Columbus, Ga.; three-story 117x133-foot additional building and 13,000 spindles, with accompanying machinery for manufacturing cotton yarns. This company's capital stock was increased \$120,000 in order to provide for the additions.

Appalachian Mills, Knoxville, Tenn.; investment of \$200,000 to enlarge buildings and install 10,000 spindles, with accompanying machinery, for knitting yarns. This product is being consumed in the company's large knitting mill.

Lynchburg Cotton Mill Co., Lynchburg, Va.; installation of 10,000 additional spindles, with accompanying machinery. This increased plant to 60,000 spindles, furnishing yarns for 1411 looms which produce fine sheeting, shirting and osnaburg.

Monarch Cotton Mills, Union, S. C.; 25,000-spindle and 500-loom addition costing about \$500,000. Graniteville Manufacturing Co., Graniteville, S. C.; 10,000 spindles and 700 automatic looms additional in connection with \$400,000 capital increase. Woodside Cotton Mills, Greenville, S. C.; 27,000-spindle and 670-loom addition costing about \$550,000. Avondale Mills, Birmingham, Ala.; branch plant at Sylacauga, known as Eva Jane Mills, with 40,000 spindles and 1200 looms, the investment being about \$1,000,000. Rosemary Manufacturing Co., Roanoke Rapids, N. C.; 22,000-spindle and 500-loom addition costing \$650,000.

ERLANGER COTTON MILLS

To Add Buildings and Machinery Costing About \$400,000.

The first important Southern textile-mill announcement of the new year is that the Erlanger Cotton Mills, Lexington, N. C., will invest approximately \$400,000 for additional buildings and machinery. This company has let contract to W. Lee Harbin of Lexington for the additional building construction, requiring a 294-foot extension to its 662-foot building, which is 387 feet long, one story high, for weaving, and 275 feet long, two stories high, for spinning; all 132 feet wide. It will add 15,400 spindles and 420 looms to its equipment of 25,000 ring spindles and 686 broad looms, producing cotton cloth, which Erlanger Bros. of New York and Baltimore manufacture into men's underwear. The original plant began manufacturing early in 1914, having been built at a cost of about \$600,000 by Erlanger Bros. and Geo. W. Montcastle of Lexington.

Revolution Cotton Mills.

By May 1 the Revolution Cotton Mills, Greensboro, N. C., expects to complete the company's \$1,250,000 enlargement heretofore detailed. The weaving-room, 530x130 feet, and the finishing and napping building are about completed, the carding and spinning building (470x130 feet) being in course of construction. Contracts have been placed for all machinery except looms, motors and electrical supplies, which are expected soon to be ordered. Electricity for power will at first be obtained from the transmission system of the Southern Power Co., but later the Revolution company expects to build its own power plant. During next summer the company expects to build about 200 dwellings for its employees, about 800 or 900 additional operatives to be required when the plant is in full operation. About 40,000 spindles, 1100 to 1200 looms, 200 cards, etc., will be the equipment of the additional mill, the daily capacity to be about 1200 pieces of cotton goods.

Completing the Flint Enlargement.

During January the Flint Manufacturing Co., Gastonia, N. C., expects to complete its enlargement under construction for several months. A 133x100-foot brick addition is being erected at a cost of about \$34,000, J. E. McAllister of Gastonia being the contractor. Machinery costing nearly \$49,000 is being installed, this equipment including 11,520 additional spindles, fur-

nished by the Whitin Machine Works of Whitinsville, Mass., and the Saco-Lowell Shops of Lowell, Mass. Electric power will be used and the capacity per week will be from 18,000 to 20,000 pounds of fine yarns, fully combed. S. W. Cramer of Charlotte is the architect-engineer for the addition. This enlargement of the plant's facilities has been undertaken in order to abolish spinning at night, but the cardroom will continue to be operated with a night force.

Hillside Cotton Mills.

The Hillside Cotton Mills, Fuller E. Callaway, treasurer, Lagrange, Ga., is preparing for the construction of the company's buildings and is inviting prices on large quantities of building supplies. These supplies are to include between 2,000,000 and 3,000,000 bricks, three-fourths hard and one-quarter average, concrete materials, lumber, etc. Plans and specifications are now being prepared by the Park A. Dallis Company of Atlanta, the architect-engineer in charge. The Hillside company was recently organized with a capitalization of \$500,000, and its plans to manufacture cotton specialties for export were detailed.

The Cotton Movement.

In his report for December 25 Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, shows that the amount of cotton brought into sight during 147 days of the present season was 7,352,446 bales, a decrease under the same period last year of 2,665,836 bales. The exports were 2,327,057 bales, a decrease of 2,768,542 bales. The takings were, by Northern spinners, 1,142,148 bales, a decrease of 394,493 bales; by Southern spinners, 1,494,510 bales, a decrease of 199,290 bales.

Textile Notes.

Suffolk (Va.) Knitting Mills, capital stock \$30,000, have been incorporated with the following officers: E. W. Cobb, president; A. H. Cobb, secretary.

Norfolk (Va.) Silk Mills, authorized capital \$50,000, have been incorporated with the following officers: Woodbury Seamans, president, New York; J. P. Andre Mottu, vice-president, Norfolk; O. C. Kunze, secretary, Newark, N. J. This company has purchased and will increase capacity of mill at Lambert's Point for manufacturing dress and tie silks.

FOREIGN NEEDS

Machinery and equipment wanted abroad are mentioned in many letters received by the MANUFACTURERS RECORD, which is so widely read in foreign countries that we are in constant receipt of many letters from all parts of the world. For the benefit of our subscribers seeking foreign trade we publish the following extracts from recent letters:

For the Trade of India.

M. Barman, banker, 145 Harrison Road, Calcutta, India, writes to the MANUFACTURERS RECORD as follows:

"India is still unexploited by your people. But in what they have taken up they are successful. To quote a single instance—gray drills. It was regularly imported from Manchester. Now the whole trade is in the hands of Americans. Same may be said of the stationery trade. It was primarily in the hands of Germans, but now American goods are coming into market steadily. There is a good chance for American manufacturers to introduce their wares in Indian markets. With Germany and Austria out of the market and England too busy with her own affairs, they will have an open field. Here they will have market for everything they can produce. Machines, agricultural machinery; small things, such as oil or petrol engines, grinding machines, small elevators, small plows, etc. Motors and motor cars are in great demand. Ford cars are becoming a favorite. Machinery for road-making is in good

demand here, as the railways are negligible with her vast territories. Motor lorries and buses are getting into favor. As all the big railway companies buy direct from England, there is little chance for getting much order from them, but good orders may be secured for light railway goods if prices are cheap for cash or long credit is granted. Machineries for jute mills and cotton ginnery, pressing, spinning and weaving factories, are in good demand. Machinery stores for tea gardens, coffee plantations and collieries are in big demand. In general, machines of all types are in demand. Stores of all types for mills, such as pulleys, etc., are in good demand. Canned fruit and preserved foods are also in demand amongst Europeans here, but they require a lot of pushing. Manufactured goods—textiles; goods of all types suitable for tropics, are in big demand. An enormous trade is done with Manchester in gray shirtings and dhooties. This trade is well worth trying for. Glass wares, enamel wares and china wares are in good demand. Lamp ware business was in the hands of Germany, but now Ditz of your country has captured it. Papers, stationery, general merchandise, etc. One cannot enumerate the list of goods that are in demand. Best thing would be for your manufacturers to send to some good firm here their samples, if possible, or full particulars of the goods they manufacture. An opinion from them will be worth a thousand times theorizing at home. If their things are suitable or can be modified according to the suggestion, they would do well to appoint one sole agent here. Moreover, it would be better if an advertising campaign may be started on behalf of a number of manufacturers in native languages. On my part, I am willing to offer my services to any reader of the MANUFACTURERS RECORD, and shall be glad to let them have my humble opinion if detailed particulars are enclosed with 2½ pence postage stamp for reply."

Tag Board Wanted.

Matthew Routley, T. Rawhite Terrace, Kelburn Wellington, New Zealand, writes to the MANUFACTURERS RECORD as follows:

"I am interested in board for making tag labels. I would be obliged if you would kindly make it known and ask manufacturers to send me samples and quotations for three or five-ton lots (in reels, stating size) at some port for shipment to New Zealand. Terms cash against documents at American port. Reference can be obtained by applying to Canadian Bank of Commerce, New York. As it is probable I shall be requiring lots from time to time, I trust I shall be favored with the lowest possible quote. With regard to the outlook for American goods in this country, I think there is a good future before it, providing the prices are right. No doubt you are aware this is not a manufacturing country. We import most things. At present large quantities of American goods find their way into this country, and now that German goods are off the list, there should be room for greater development. Having been connected with the building trade here for years, I have handled a lot of American hardware, and I am pleased to state I have always found them very satisfactory. I may say I am interested in machinery. In fact, I have recently invented a tag label machine costing about £125 which shapes, reinforces, prints and strings 4000 labels per hour in one operation. I am enclosing a couple of labels to show how string is put on, but no doubt you have machines in the States that will beat this. I shall be pleased at all times to give you any information I can regarding the outlook here for any new ideas or labor-saving devices that may come under your notice"

Wanted for Brazil's Trade.

Capietti Lino, San Paulo, Brazil, writes to the MANUFACTURERS RECORD as follows:

"I had the pleasure of sending you \$6.50 for one year's subscription, and I hope you will send the journal to me regularly. I have been established here in Brazil for two years as agent for European firms making tools, machinery, lubricating oils, belting, etc. Finding myself now in commercial relation with some of the leading important houses of this place, I feel that I shall have need of getting into communication with other manufacturers of specialties in these lines: Lubricants, tools, leather belts, chamois skin, machinery for work-

ing wood, seed sowing machinery and so on; of course it is understood they must make me their representative here. In regard to tools, I got well acquainted with that line of goods through the house of Keenkutter; that was while I was operating in Italy as the agent at Milan for the firm of Charles Civita. As I have already said, being well acquainted with the line of goods referred to, I could easily push business here, above all, for the reason that at present it is impossible to export goods from Germany. If it was possible I would like to get in contact with the people producing the Duplex threads, etc. I have great confidence in the results to be obtained from your support, and I beg you to send me as soon as possible, if you please, the names of firms who might be disposed to make me their agent at this place; they might send me their terms, their catalogues and prices, and if possible samples, in order to avoid too great loss of time. I have at this moment an order for automatic pistols, six and eight-shooters, and I will appreciate it very much if you will put me in communication with some people making this article. I also have orders for certain kind of iron called in our country Feratul, and I would thank you if you could get me some offers in that line."

To Represent Manufacturers.

Samuel Smith & Sons, Ltd., engineers and iron founders, Beehive Foundry, Smethwick, England, write to the MANUFACTURERS RECORD as follows:

"The particular countries in which we are interested are Spain and the Southern European countries. The purchasing power of these countries, although apparently ignored by many American manufacturers, is considerable. It is surprising to see that while much is written on the question of export trade in both English and American papers, the only countries which appear to have prominence are the South American Republics and the British Colonies, and little notice is taken of other countries. It must be a long while before Belgium, Germany, Holland and Austria can again reach the position they have held in the export world previous to this war. Now a certain amount of trade must come to American manufacturers from abroad on their own terms to replace the German trade; yet how far is this likely to be permanent? I maintain not for long, unless manufacturers are prepared to give such facilities for credit as are necessary for the building up of a permanent business. In addition to this, it will be necessary to give delivery as c. i. f. and not f. o. b. In the engineering and hardware trades there is business to be done which is of considerably larger magnitude than probably many of your readers think. It is my intention to extend and develop trade in these countries, and I should be glad to be put into touch with manufacturers who are likely to be interested."

Cuba Needs American Products.

Leon Lopez, Lamparilla 21, Havana, Cuba, writes to the MANUFACTURERS RECORD as follows:

"The copies of the MANUFACTURERS RECORD are in hand, and I thank you for the attention. I have seen notices of many articles in its columns which could readily find a market here, and I would appreciate it very much if you could put me in communication with some of your people who would be interested in exporting goods to our country, the more especially as the present unfortunate condition of affairs in Europe would make it a very favorable time to place American goods here. The articles which I would like to handle are the following: Cements, lubricating oils, heavy iron goods, hardware, paper and paper bags, and other similar articles for which your people might find a market. My personal acquaintance with the local market and experiences in the branches referred to permits me to assure you good returns. For reference you might refer to 'La Carama Espanola De Comercio Industria Y Navejacion.' This is practically the Chamber of Commerce of this port, to which I have the honor of belonging. I would take great pleasure, whenever you wish it, in giving you information and particulars about the market and commercial affairs in general of this place. Pedro A. Perez Cailler of the Consulate of Cuba in your city is also in a position to give you information in regard to me."

MECHANICAL

Illustrations and descriptions having news value pertaining to developments in machinery, mechanical devices and inventions will be considered for use in this department.

"Modern" Self-Contained Grinding Machine.

The new plain grinding machines brought out by the Modern Tool Co. of Erie, Pa., are said to have many new and important features embodied in their design that makes them a desirable and economical acquisition to the factory, especially from a manufacturer's point of view. These machines are of the self-contained type, and can be driven either directly from the main-line shaft or from individual motor. At present the machines are made in eight sizes—four with 12-inch swing, having beds in 2, 3, 4 or 5-foot lengths, and four sizes with 16-inch swing, having beds in 2, 3, 4 or 5-foot lengths.

A feature of the machine is the speed-change device, which is a compact unit bolted to the right side of the base. By means of this device are obtained twelve work speeds ranging from 22 to 250 revolutions per minute, and six table speeds ranging from 22 to 104 inches per minute. All these speeds are positive, being through gears, and are obtained by moving levers on the front of the machine within easy reach of the operator. These levers operate sliding keys that, in turn, operate the Modern Tool Co.'s well-known ball-drive clutch, which is applied to each change gear, and because of the ease of operation and positive action of the drive clutches any speed can be obtained instantly without stopping the machine. The advantages derived from having the correct speeds for any class of work, and being able to obtain them instantly, are appreciated by every operator. All levers pertaining to the operation of the machine are placed on the front within easy reach of the operator, as shown in the accompanying illustration.

The gears, which run in oil, are enclosed in a case located on the base of the machine. The gear box proper consists of two parts—a lower one, forming an oil-tight container for the lubricant and serving as the support for the three shafts, and an upper part carrying two shafts and gears for doubling the work speeds. The power is supplied from the main-drive shaft on the back of the machine by belt to pulley. Three series of gears, which are journaled in a case, and are at all times in mesh, running at constant speed, constitute the change-speed device. A positive jaw clutch engages the gears, giving six changes of work speeds, with six additional changes of speeds obtained by clutch and gear arrangements.

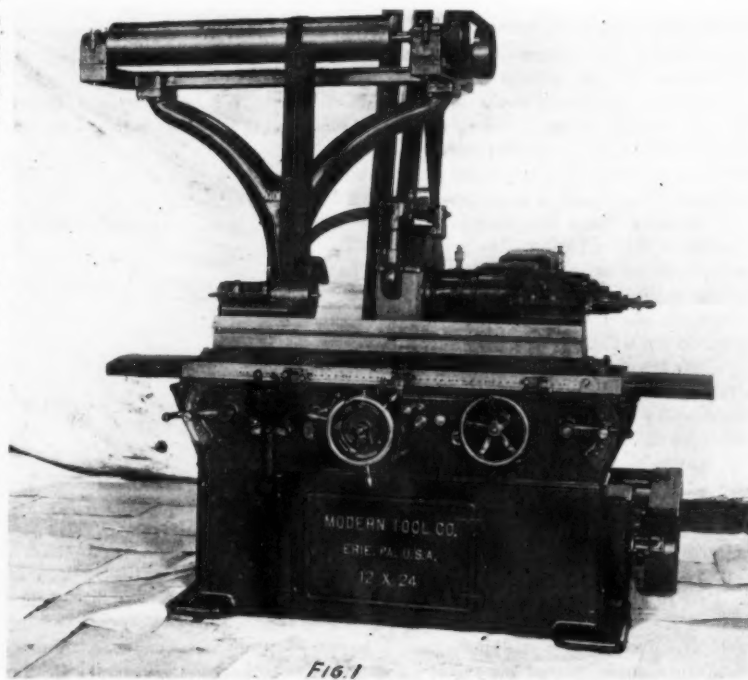
Simplicity of operation as carried throughout is further illustrated in the adjustment of the automatic cross-feed, which is claimed to produce the desired amount of feed instantly and positively by moving a lever to the desired notch in the dial plate as designated by the graduations, and, further, the feed can be thrown in or out at either or both ends just as quickly and easily.

The head and foot stocks are fitted to the swivel table by means of flat and "V" ways, which enable positive alignment to be made in any location in which they may be placed. The head stock is belt driven, no gears whatever being used in its construction. The wheel stand also slides upon flat and "V" ways. The wheel spindle is of large diameter, with its bearings long and wide apart, and is driven by a long belt, 6 inches wide, running on large pulleys, giving an oversupply of power without an excessively tight belt. Arrangements are made for two spindle speeds.

The sliding table travel is automatic and the reversal is positive. Power is transmitted to the table through the company's well-known method of worm gearing, which imparts a perfectly even movement throughout its entire travel. This, together with the non-self-centering feature of the reverse mechanism, is claimed to give an accuracy and reliability in action that is much desired for the proper carrying out of the function of an accurate machine of this type, and is greatly appreciated by the operator.

"Single-Line" Steam Shovel.

A revolving, "single-line," full-circle, swing-type steam shovel, which is said to be unequalled for road and street work, general excavating, brickyards, gravel pits, strip-



SELF-CONTAINED GRINDING MACHINE.

ping, etc., has been recently developed and successfully demonstrated by the American Steel Dredge Co. of Fort Wayne, Ind., manufacturer of dredges and steam shovels. The principle involved in the construction of this shovel is said to be thoroughly established through the company's wide experience, and recognized as possessing advantages, such as the direct single-line hoist, employing but a single sheave of large diameter at the point of the boom, the engines being compound geared, increasing both power and speed. In this arrangement the padlock sheave is dispensed with entirely and permits of an increased reach and a correspondingly higher lift to the dipper. Aside from this, a wider and more effective digging angle is said to be obtained.

In the compact arrangement of the machinery the independent rotating engines and the hoisting engines are placed side by side. The crowding engines, which are located on the boom, are so geared in relation to speed of the hoisting engines as to permit the operator to cut a perfectly level grade. For traveling under obstructions the boom can be readily lowered to any desired angle. A steel center gudgeon inserted from above permits of the shovel being easily and quickly assembled or dismantled.

The few levers necessary for control of the

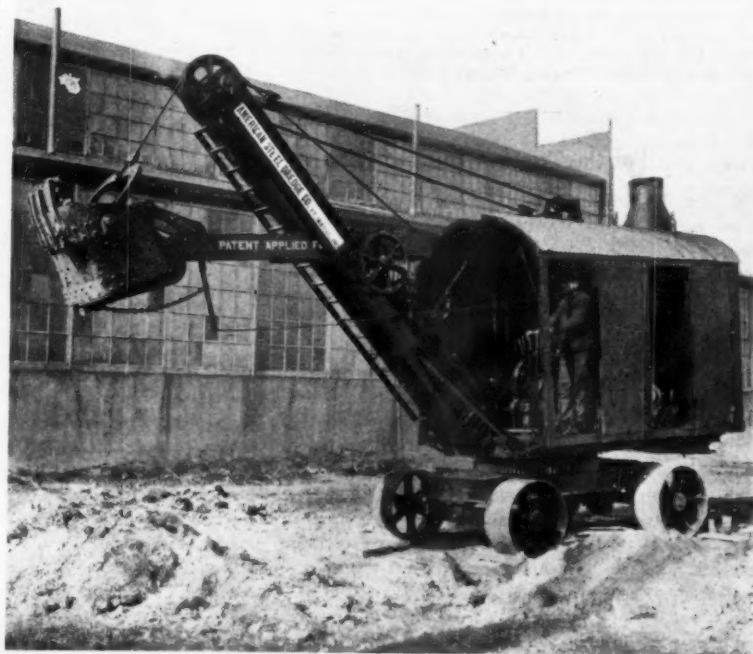
shovel, which are placed conveniently near the left-hand forward corner of the cab, give the operator plenty of room, an unobstructed view and a clear passageway to the boiler, allowing the shovel to be easily operated by one man.

The truck, which is mounted on wide-face steel traction wheels (as shown in the illustration) or on standard railroad wheels, either type being interchangeable, is of rigid steel construction, with swiveling front axle, steered by a combination hand and power device. Traction drive is obtained through cut-steel gearing from the center shaft. Attached to the truck is a rotating frame, consisting of a large all-steel center casting, which carries the machinery and to which are rigidly secured structural-steel members supporting a vertical boiler, water tank, coal bunker and steel frame for the cab. Double, horizontal, compound-gear engines, fitted with link reverse, with the engine frames and guides of steel, cast integral and rigidly bolted to the main center casting, furnish power for the dipper through a hoisting friction composed of a compound, toggle-type outside band applied to the intermediate shaft. Simple and compact, double-balanced piston-type rotating and crowding engines, which are reversed by a single lever, are used. Engine pistons and compound gearing are of steel, with machine-cut teeth, and vanadium steel, cast integral, is used in the construction of the shipper shaft and pinions. A steel-constructed boom supports the hollow-steel construction dipper handle of new design, with extra-heavy dipper attached.

In bulletin No. 9, describing and illustrating the type "S" "single-line" steam shovel, the company announces that the greatest care is exercised in the selection of materials, and that all parts of the machinery are made on the interchangeable principle.

\$5,000,000 Barge Line Plan.

John H. Bernhard of New York, "technical adviser to a group of Eastern financiers," according to a report from St. Louis, has submitted to the Board of Public Service there a plan to install a \$5,000,000 line of freight barges on the Mississippi River and to build a \$600,000 terminal if the city will co-operate with promoters for the interchange of freight between the river and the railroads. The board referred the proposition to the director of public utilities, Mr. Hooke, with instructions to offer the desired co-operation in connection with the proposed municipal belt line railroad, which is designed to include the existing tracks of the St. Louis Terminal Railroad Association on the levee and extensions to be built. The plan appears to be in embryo, with a fair prospect of being fulfilled. Mr. Bernhard was one of the prime movers in the establishment of a barge line between the Tombigbee River and New Orleans via Mississippi Sound, the Lake Borgne Canal and Lake Pontchartrain.



TYPE "S" "SINGLE-LINE" SHOVEL.

Construction Department

IN ORDER TO FOLLOW UP

Properly the Construction Department items, please bear in mind the following statements:

EXPLANATORY

The MANUFACTURERS RECORD seeks to verify the items reported in its Construction Department by full investigation. It is often impossible to do this before the item must be printed or else lose its value as news, and in some items it is found advisable to make statements as "reported" or "rumored," and not as positive information. If our readers will note these points they will see the necessity of the discrimination. We are always glad to have our attention called to errors that may occur.

HOW TO ADDRESS

The name of one or more incorporators of a newly incorporated enterprise should always be written on letter addressed to the official headquarters or to the town of the parties sought, as may be shown in the item. Sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. By following these general directions the postoffice will generally be enabled to deliver your mail promptly, although it is inevitable that some failure by the postal authorities to deliver mail to new concerns will occur, as our reports are often published before new companies are known and before they have any established office for the receipt of mail.

WRITE PERSONAL LETTERS

In communicating with individuals and firms reported in these columns a letter written specifically about the matter reported will receive better and quicker attention than a circular. In most instances a return postal card or addressed and stamped envelope should be enclosed with letter.

In correspondence relating to information published in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

DAILY BULLETIN

The Daily Bulletin of the Manufacturers Record is published every business day in order to give the earliest possible news about new industrial, commercial, building, railroad and financial enterprises organized in the South and Southwest. It is invaluable to manufacturers, contractors, engineers and all others who want to get in touch at the earliest moment with new undertakings, or the enlargement of established enterprises. The subscription price is \$25 per year.

All advertising contracts in the Manufacturers Record for three months or longer include a subscription to the Daily Bulletin for the contract period, as well as a subscription to the Manufacturers Record.

BRIDGES, CULVERTS, VIADUCTS

Ala., Eufaula.—Barbour county let contract J. H. Scruggs and C. E. Ard, Birmingham, Ala., to erect \$6000 reinforced concrete bridge; 5 girder spans; total length 216 ft.; R. P. Boyd, Asst. State Highway Engr. (Bids lately noted.)

Ark., Glenwood.—Pike County Comms. are considering petition for erection of additional steel bridge across Caddo River; K. B. Halliman, Wm. Fagan and M. L. Turner, local bridge committee.

Fla., Clearwater.—Indian Rocks Realty Co. has permit to construct bridge across channel at Indian Rocks; proposes to build steel drawbridge.

Fla., Jacksonville.—Atlantic Harbor R. R. Co., Geo. J. Percival, Prest., Atlantic City, N. J., contemplates constructing bridges, viaducts, etc. in connection with railroad; petitioned War Dept. for authority to construct bridge over Sisters Creek. (See Railway Shops, Terminals, Roundhouses, etc.)

Fla., Jacksonville.—City authorities, Seaboard Air Line Ry. (W. D. Faucette, Ch. Engr., Norfolk, Va.) and St. Johns River Terminal Co. (J. A. Griffin, Engr. M. W. Macon, Ga.) let contract Hillyer & Sperring Co. of Jacksonville to construct reinforced concrete viaduct over Hogan Creek and tracks at Duval St.; bridge proper to be 800 ft. long; 1000 ft. of approaches; total width 44 ft.; clearance 21 ft.; scoria block paving; wiring under sidewalk; estimated cost \$120,000; contractor wants cement, crushed stone; concrete chutes and steel rods; previously noted. (See Machinery Wanted.)

Fla., South Jacksonville.—Florida East Coast Ry., E. Ben Carter, Ch. Engr., St. Augustine, Fla., will expend \$125,000 on lately-noted bridge to replace present structure; erect 1100-ft. deck girder, concrete piers; date of opening bids not set; when ready plans and specifications will be at office of chief engineer.

Fla., Tampa.—Atlantic Coast Line R. R., E. B. Pleasants, Ch. Engr., Wilmington, N. C., is reported to rebuild bridge over Hillsboro River.

Ga., Rome.—Floyd County Comms. of Roads and Revenue engaged Greiner & Whitman, Const. Engrs., 1308-1310 Fidelity Bldg., Baltimore, Md., and Wm. C. Spiker, Const.

Engr., 1123 Hurt Bldg., Atlanta, Ga. (associate engineer) to prepare plans and supervise construction of 8 bridges; all probably of concrete, and each about 350 ft. long, with 40-ft. roadway and two 8-ft. sidewalks; to cost about \$200,000. (Lately noted.)

Md., Baltimore.—State Roads Com., 601 Garrett Bldg., will construct reinforced concrete bridge, 16 30-ft. and 1 32-ft. spans, girder construction; reinforced concrete bridge, 7 15-ft. spans, girder construction, across main branch of Patapsco River between Baltimore and Anne Arundel counties; also for about 1.5 mi. of sheet asphalt paving for Hanover St. bridge and approaches, Contract No. Bc-17, Section 6, Baltimore city; bids until Jan. 19; Wm. L. Marcy, Secy. of Com. (See Machinery Wanted.)

Mo., Rolla.—Rolla, Ozark & Southern Ry. Co., J. Ellis Walker, Gen. Mgr., will construct 2 bridges across Dry Fork Creek in connection with proposed railroad from Rolla to Annett, Mo.

Tenn., Greenville.—Carolina, Greenville & Northern R. R. Co., F. A. H. Kelly, Ch. Engr., Greenville, will build 2 bridges in connection with 75-mi. railroad from Newport to Kingsport, Tenn.; one bridge across Holston River and one over French Broad.

Tex., Wharton.—Wharton county will repair bridge over Colorado River; bids until Jan. 11; John A. Norris, County Surveyor; W. G. Davis, County Judge. (See Machinery Wanted.)

CANNING AND PACKING PLANTS

La., Morgan City.—Louisiana Syrup & Canning Co. (lately noted inceptd., capital stock \$25,000) organized; H. M. Cotten, Prest.; C. A. Roussel and B. O'Brien, V.-Ps.; M. E. Norman, Secy.; J. F. Prohaska, Treas.; A. M. Cotten, Mgr.; building completed.

La., New Orleans.—Cudahy Packing Co. has plans by J. E. Otis and Walter Cook Keenan of New Orleans for packing and cold-storage plant; brick; stone trimmings; composition roof.

Md., Baltimore.—Salganik Wolk & Sons, 104 S. Exeter St., inceptd. as Consolidated Beef & Provision Co., has plans by Geo. R. Callis, Jr., 55 Knickerbocker Bldg., Baltimore, for constructing packing plant at 102-1 S. Exeter St.; 50x50-ft. building; concrete, brick and frame construction; slag roof;

steam heat; electric lights; cement sidewalks; bar lock lights; freight elevator; will install electric drive 100-ton ice machine, refrigerating plant, sausage machines, complete kitchen outfit, etc.; will have 3 smoke-houses; total cost about \$30,000. Bidders are Consolidated Engineering Co., 243 Calvert Bldg.; Fredk. Decker & Son, 1209 E. Biddle St.; Ideal Construction Co., Law Bldg.; West Construction Co., 23 Knickerbocker Bldg.; Cowan Building Co., 106 W. Madison St.; all of Baltimore; Lustbader Construction Co., 163 W. 82d St., New York. Bids due about Jan. 14. (Previously noted.)

Mo., West Plains.—J. Ed. Toler and H. F. Davidson are reported to erect fireproof building for packing plant.

CLAYWORKING PLANTS

Ark., Glenwood.—Bricks, Pottery, etc.—Glenwood Brick and Tile Works will be inceptd., \$20,000 capital stock, by P. S. Edwards, O. E. Grimes and others; install stiff-mud and dry-process plant; also art pottery.

Mo., Kansas City.—Bricks.—Waverly Brick & Coal Co., increased capital stock from \$300,000 to \$600,000.

COAL MINES AND COKE OVENS

Ky., Hazard.—R. T. Hoskins and S. H. Means, Bluefield, W. Va., leased and will develop coal lands; construct 1 mi. branch railroad on L. & N. R. R.; initial output 1500 tons coal daily.

Ky., Typo.—W. R. & C. P. Pense, Philadelphia, Pa., leased coal land on First Creek and will begin development in 2 weeks; plan to install electrically-equipped plant; daily output 100 tons coal.

Mo., Kansas City.—Waverly Brick & Coal Co. increased capital stock from \$300,000 to \$600,000.

Okla., Wilburton.—Wilburton Coal & Mining Co., capital stock \$1000, inceptd. by Jas. D. Katigan and Anna Katigan of Wilburton and John Campbell of Ritchie, Mo.

Tenn., Chattanooga.—Barnes Coal & Supply Co., capital \$25,000, inceptd. by W. E. Brock, W. A. Sadd, M. L. Brock and others.

Va., Lynchburg.—Diamond Black Coal Co., capital \$100,000 inceptd.; Randolph Harrison, Prest.; G. H. Watkins, Secy.-Treas.

W. Va., Kanawha County.—Campbell's Creek Coal Co., general offices, Suite 918 Union Central Bldg., Cincinnati, O., lately noted as purchasing 474 acres coal land, advises does not intend to open the land for some time.

W. Va., Logan.—R. R. Smith purchased 200 acres coal land for \$35,000 and will develop.

W. Va., Logan County.—Purseglove-Maher Co., Jos. Purseglove, Prest., Cleveland, O., will acquire coal lands in Logan county, and proposes organizing new company to undertake developments. (Noted in November.)

W. Va., Morgantown.—Wilfong Coal & Coke Co., capital \$10,000, inceptd. by Wm. L. Boughner and Thos. Ray Dille of Morgantown, John Wilfong, L. C. Wilfong and Edward Wilfong of Fairmont, W. Va. (Lately noted incorporated.)

CONCRETE AND CEMENT PLANTS

Fla., Titusville.—Cement Blocks, etc.—Geo. W. Michel purchased land on which to erect building 20x90 ft. to be equipped to manufacture cement blocks, bricks, coping, etc.

Tex., Rockport.—Building Materials.—R. P. Bracht Co. is reported to install equipment to manufacture concrete building material.

COTTON COMPRESSES AND GINS

Ala., Greenville.—Claud Taylor, R. F. D. 6, contemplates rebuilding gin lately noted burned; capacity 20 bales. (See Machinery Wanted.)

Ga., Sunnyside.—T. G. Barfield will rebuild plant previously (under Griffin, Ga.) reported burned; erect \$800 galvanized sheet-iron building; open bids Apr. 15 on machinery to cost about \$3000.

Okla., Hugo.—International Compress Co. of Paris, Tex., will rebuild cotton compress lately reported burned at estimated loss of \$125,000, including cotton.

Tex., Cumby.—L. Strickland & Son will rebuild gin lately reported burned at loss of \$4000.

Tex., Conroe.—Conroe Gin, Ice and Light Co., J. McDade, Prest., is asking bids on gin, ice and electric-light plant lately noted to be rebuilt; erect fireproof building. (See Machinery Wanted.)

Tex., Brady.—Koerth Gin Co., capital stock \$11,500, inceptd. by J. C. Koerth, Paul R. Bayer and W. F. Schultz.

DRAINAGE SYSTEMS

Ark., Marion.—Drainage Dist. No. 6 organized to drain and develop 27,500 acres swamp land in Crittenden county between Marion and Hurlburt; plans to issue \$150,000 bonds; Willis E. Ayres, Engr., Memphis, Tenn.

Fla., Bartow.—Peace Creek Drainage Dist. Supvrs., E. L. Mack, Secy. and C. G. Elliott (ex-National Drainage Commr.) Ch. Engr., will soon ask bids to complete drainage work; system comprises 125 mi. drainage ditches and canals, and has been previously fully described; in this district the Twenty Lakes Boat Course Club of Winter Haven will develop 100-mi. motor-boat course.

Mo., Lewis County.—Fabius River Drainage Dist. Supvrs., J. H. Best, Secy., Illinois State Bank, Quincy, Ill., will construct levees, ditches and diversion channels; about 2,000,000 cu. yds. ditch and channel excavation and levee fill; bids until Jan. 20; Harman Engineering Co., Engr., 144 Fredonia Ave., Peoria, Ill. (See Machinery Wanted.)

Tex., Angleton.—Angleton Drainage Dist. voted \$80,000 drainage bonds. Address Comms. Angleton Drainage Dist.

Tex., Edna.—Jackson County Drainage Dist. No. 4, Fred Spencer, Chrmn., will construct canals, drains, ditches and levees, straightening and cleaning water courses, etc.; work consists principally of about 100 mi. of ditches, yardage about 382,343; area of district, 20,000 acres; Drainage Comms. receive bids until Jan. 12; S. L. Chalk, Dist. Engr., Box 592, San Antonio; J. W. Bagby, County Judge, Edna. (See Machinery Wanted.)

ELECTRIC PLANTS

Ark., Blytheville.—Hollipeter & Jontz Co. are reported to remodel building and double capacity of electric-light and ice plants; let contract for portion of remodeling.

Ark., Fort Smith.—C. C. Jones (Chrmn.), G. E. Berson, S. E. Donoghue and others appointed committee in charge of proposition to install electric-light and power plant; bids on plant to be received Jan. 10.

Fla., Fellsmere.—Robt. Kaun contemplates building private electric-light plant to be operated by artesian-well power.

Ga., Toccoa.—City contemplates building electric-light plant. Address The Mayor.

Ky., Brandenburg.—W. D. Coleman purchased electric-light franchise and will install street-lighting system.

Ky., Rockport.—Rockport Coal Co. received lately-granted franchise for its individual use, and not for public system.

La., Amite.—Central Light & Power Co. contemplates installing 2 oil-burning engines; place arc lights on principal streets.

Md., Oakland.—Oakland Electric Co. will acquire Oakland electric-light plant; Harland L. Jones is Secy.-Treas. and Abram Lawton, Supt.; cost of plant \$5000; no building.

Mo., Cameron.—City is reported as having plans prepared by Harper & Stiles, 911 Grand Ave. Temple, Kansas City, for enlarging and improving electric-light system; plans include improvements to power-house and installation of additional equipment.

Mo., Slater.—City is reported as contemplating installation of generating unit in electric-light plant, consisting of 275 K. V. A. generator and engine; L. E. Shepard, Supt.

N. C., Greensboro.—Revolution Cotton Mills expects later to build electric-power plant for \$1,250,000 enlargement (heretofore detailed under Textile Mills), to be completed about May; at first will use electric power from transmission system of Southern Power Co., Charlotte, N. C.

Tenn., Mason.—City. J. M. Marshall, Mayor, does not contemplate building electric-light plant. (Recent report incorrect.)

Tex., Conroe.—Conroe Gin, Ice & Light Co., lately noted to rebuild plant, is asking bids on complete plant. (See Cotton Compresses and Gins, also Machinery Wanted.)

Tex., Denton.—City contemplates voting on \$10,000 bonds to extend light and water systems. Address The Mayor. (See Water-works.)

Tex., Mission.—City is reported as contemplating voting in Feb. on bonds for electric-light plant and water-works; Willard Ferguson, Mayor.

Tex., Wolfe City.—Wolfe City Light Co., capital stock \$6000, inceptd. by M. Tasker, Edward Tasker and Frank F. Becker.

Va., Grundy.—City will install electric-light plant; also ice plant to operate in connection. Address The Mayor.

LOUR, FEED AND MEAL MILLS

Ark., Mountain View.—Wm. Veith, Hillsboro, Ark., is reported to build mill.

Ark., Rondo.—Chas. McKee, B. M. Gist and others are reported as contemplating establishment of flour mill; capacity about 25 bbls.

Ga., Cordele.—I. M. Powell will build flour mill; install cornmeal equipment.

Ky., LaGrange.—E. E. McGee and I. D. Mitchell are reported as contemplating establishment of flour and grist mill with daily capacity of 25 bbls., to be increased to 50 bbls.

Mo., Hunter.—R. E. Bray is reported as communicating with company contemplating establishment of 40-bbl. roller flour mill, with cornmeal and feed equipment.

N. C., Andrews.—Carolina Feed & Lumber Co., capital stock \$10,000, inceptd. by W. C. King, J. J. King and B. E. Smathers.

Okl., Billings.—Pearson & Dayton will establish flour mill.

Okl., Eldorado.—Local interests are reported as consulting with W. L. Hutcherson, Oklahoma City, Okla., on installation of machinery, etc., for 25-bbl. flour mill to cost about \$5000.

S. C., Clinton.—T. J. Blalock is reported to build 25 or 50-bbl. flour and corn mill in connection with gin.

S. C., Edmund.—H. Z. Ricard will install roller flour mill, capacity 30 bbls., to be operated by water-power. (See Machinery Wanted.)

S. C., Rock Hill.—Wm. R. Timmons, Secy. Chamber of Commerce, interested in plan to build mill with daily capacity 50 bbls. flour. (See Machinery Wanted.)

Tenn., Dunlap.—J. W. Mansfield is reported to build 50-bbl. custom and merchant mill.

Tex., Houston.—Monarch Milling Co., capital stock \$10,000, inceptd. by L. R. Street, H. C. Schirmer and Dan C. Smith, Jr.

Tex., Marlin.—Alex. R. Scheef contemplates erecting and installing small custom mill for wheat.

W. Va., Winfield.—Jas. Enicks will build corn mill.

FOUNDRY AND MACHINE PLANTS

Ky., Louisville.—Iron.—R. Baylor Hickman, A. T. Hart and Lawrence Jones purchased Ewald Iron Works; contemplate enlarging and improving; Mr. Hickman will be Pres.

Ky., Newport.—Iron Roofing, etc.—Globe Iron Roofing & Corrugating Co., capital \$20,000, inceptd. by Albert L. Andrews, Wm. H. Andrews, Jos. B. Andrews and A. K. Andrews.

Va., Richmond.—Machine Shop.—Richmond Forging Corp. will repair hammer shop at Acca lately noted burned at estimated loss of \$8000; all-steel building, 60x200 ft.; let contract Richmond Structural Steel Co., Richmond, and purchased large part of material; manufacture drop forgings.

W. Va., Wheeling.—Iron and Steel Sheets.—Whitaker-Glessner Co. will rebuild machine shops and storeroom reported burned at estimated loss of \$5000 to \$10,000.

GAS AND OIL ENTERPRISES

Ky., Fallsburg.—Fallsburg Oil & Gas Co., capital \$10,000, inceptd. by Jeff Collinsworth, E. P. Webb, J. A. Collinsworth and A. Collinsworth.

Okl., Lawton.—Short Grass Oil & Gas Co., capital \$20,000, inceptd. by Oscar J. Jones, Yelton, Okla.; J. C. Lowry and Chas. Prescott, Englewood, Kans.

Okl., Okmulgee.—Gab Oil Co., capital stock \$6400, inceptd. by J. W. McCulloch and

H. C. Detrick of Okmulgee and E. U. Young of Morris, Okla.

Okl., Sapulpa.—Sapulpa Gas & Oil Co., capital \$15,000, inceptd. by P. E. Smith of Sapulpa, P. F. Smith and L. E. Smith of Tulsa.

S. C., Charleston.—Economy Oil Co., capital \$2000, inceptd. by H. J. O'Neill and Lewis Grimball.

S. C., North Augusta.—North Augusta Water & Gas Co., Jas. U. Jackson, Pres., contemplates building gas plant. (See Water-works.)

Tex., Houston.—Star Drilling Co., capital stock \$5000, inceptd. by A. A. Snell, John T. Boyle and A. B. Clough.

ICE AND COLD-STORAGE PLANTS

Ala., Union Springs.—F. A. Munlis and P. Kuhn of Iowa are reported to establish ice factory; daily capacity 20 tons; cost about \$20,000.

Ark., Blytheville.—Hollipeter & Jontz Co. are reported to remodel building and double capacity of ice and electric-light plants; let contract for portion of remodeling.

Fla., Umatilla.—Umatilla Ice & Storage Co. will erect ice and cold-storage plant; 1 story; brick; 70x40 ft.; brick and frame. (Lately noted inceptd. with \$10,000 capital stock by P. C. Turner and others.)

Ky., Irvine.—J. W. Smith of Winchester, Ky., and A. J. Conn of Louisville, Ky., contemplate establishing ice factory.

La., New Orleans.—Cudaby Packing Co. has plans by J. E. Otis and Walter Cook Keenan of New Orleans for cold-storage and packing plant; brick; stone trimmings; composition roof.

S. C., Spartanburg.—Hallett Ice & Coal Co., capital stock \$32,000, inceptd. by W. B. Hallett of Spartanburg; A. Sherrod, W. D. Sherman and C. C. Walker of High Point, N. C.; acquired Mr. Hallett's ice plant; will erect 2-story brick building; also install equipment to manufacture ice-cream.

Tex., Conroe.—Conroe Gin, Ice & Light Co., lately noted to rebuild, is asking bids on complete plant. (See Cotton Compresses and Gins, also Machinery Wanted.)

Tex., Galveston.—Galveston Ice & Cold Storage Co. will build 3-story brick addition to ice plant; addition to be used for storing ice; estimated cost \$50,000; plant at present has storage capacity of 350,000 cu. ft. and manufactures 70 tons ice daily.

Tex., Temple.—Temple Ice & Refrigerating Co. (lately noted inceptd., capital stock \$120,000) renews charter; no changes contemplated; P. L. Downs, Pres.; J. B. Klem, V.-P.; J. C. Mitchell, Secy., Treas. and Mgr.

Va., Grundy.—City will install ice plant. Address The Mayor. (See Electric Plants.)

Va., Richmond.—Crystal Ice Co., 20th and Cary Sts., will expend about \$14,000 on repairs to 2 ice machines.

Va., Wachapreague.—Wachapreague Ice Mfg. Co., capital \$20,000, inceptd.; E. T. Powell, Pres.; J. G. Nock, Secy.-Treas.

W. Va., Clarksburg.—Arctic Ice and Bottling Works, capital stock \$75,000, inceptd. by Thos. Connell, Wm. Wanstreet, Wm. P. Coughlin and others. (Lately noted.)

LAND DEVELOPMENTS

Ark., Stuttgart.—Stuttgart Rice Growing Co., capital stock \$30,000, inceptd.; H. E. Duensing, Pres.; S. R. Connor, V.-P.; M. S. Duensing, Secy.-Treas.

D. C., Washington.—Col. W. W. Harts, Supt. of Public Buildings and Grounds, submitted plans to District authorities for improvement of Meridian Hill Park; estimates call for amounts as follows: \$82,000 for retaining wall, \$118,500 for architectural work, \$39,000 for soil and plantings, \$25,700 for roads and sidewalks, \$19,000 for lighting, water supply and drainage, and \$25,000 for contingencies; Congress has appropriated funds for retaining wall, which will extend along 16th St. from Euclid St. for 1500 ft. and along Euclid St. 230 ft., and vary in height from 2 to 14 ft.

Fla., Ormond.—Moundgrove Fruit Co., capital stock \$100,000, inceptd.; L. B. Knox, Pres.; F. M. Leonard, V.-P.; D. B. Knox, Secy.-Treas.

Fla., Pensacola.—Jas. E. Plew, 436 Webster Bldg., 327 S. La Salle St., Chicago, Ill., advises that land lately noted purchased is in Escambia county, 12 to 15 mi. from Pensacola; about 10,000 acres; contemplates selling in lots of 80 or more acres to Northern farmers for satsuma orange and pecan groves development; has sold some land for general farming.

N. C., Hoffman.—Leak Everett Land Co., Rockingham, N. C. (previously noted inceptd., capital \$150,000), organized; T. C. Leak, Pres.; J. Le Grand Everett, Secy.-Treas.; has acreage (or options) on 18,000 acres near Hoffman, and within 15 miles of Pinchurst; land now mainly undeveloped, and contains much timber.

Tex., Jacksboro.—Avis Townsite Co., capital stock \$3000, inceptd. by J. D. Avis, W. T. Wood and D. B. Reed.

Tex., Marshall.—Harrison Land Co., capital stock \$5000, inceptd. by E. Key, C. G. Key and H. Key.

LUMBER MANUFACTURING

Ala., Maplesville.—Twin Tree Lumber Co. will rebuild planing mill and drykilns; new drying equipment to consist of three 20x100-ft. moist-air kilns; let contract for equipment.

Fla., Williston.—Gatlin & Dowling (J. F. Gatlin and T. B. Dowling, partnership) are progressing with construction of 32x180-ft. wooden building; erection by day's work; machinery purchased excepting conveyor chain; manufacture yellow-pine timber; daily capacity, 25,000 ft.

Ga., Plains.—Logan & Andrews, capital stock \$40,000, inceptd. by J. R. Logan and Rees M. Andrews.

Ky., Hyden.—Valley Creek Lumber Co., Rochester, N. Y. (represented by A. C. Craft), reported as closing deal on white oak timber tract and to install lumber and stave mills.

Ky., Whitesburg.—L. F. Jackson and others of Mayking, Ky., will install planing mill.

La., Carson.—Delta Land & Timber Co., Chas. S. Keith, Pres., Kansas City, Mo., is progressing with construction of plant previously noted to be rebuilt; erect sawmill, contiguous buildings, platforms and kilns, live rolls, corrugated roofing and siding; ordinary construction, with steel band mill foundations; conveyors; steel framing and corrugated roofing on boiler, engine and fuel rooms; Thrall & Shea, Contrs., now erecting mill; Filer & Stowell Co., Milwaukee, to furnish all machinery; moist-air drykilns now being installed; manufacture long-leaf yellow-pine lumber; daily capacity, 150,000 ft.; J. H. Morrison, Gen. Supt., Carson.

Miss., Jackson.—Harris Bros. Co. (Chicago House Wrecking Co.), 35th and Iron Sts., Chicago, advises has completed plant at Jackson. (Noted in October as purchasing 2-acre site for planing mill of 100,000 ft. daily capacity and woodworking plant for general mill work.)

Mo., Kennett.—Campbell Lumber & Supply Co., capital \$35,000, inceptd. by O. A. McFarland, S. E. Wright and Othar McFarland.

Mo., Kennett.—Laswell Lumber Co., capital \$180,000, inceptd. by W. D. Laswell, W. A. Post and J. W. Grider.

N. C., Andrews.—Carolina Feed & Lumber Co., capital stock \$10,000, inceptd. by W. C. King, J. J. King and B. E. Smathers.

N. C., Pisgah Forest.—Carr Lumber Co. has about completed new mill; now has daily capacity 90,000 ft. hardwoods—poplar, oak, chestnut, basswood, birch, beech, maple, etc.; is operating on 70,000 acres Biltmore estate; contemplates installing planing mill and drykilns during 1915. (Lately noted.)

S. C., Georgetown.—Winyah Lumber Co. let contract for three 19x104-ft. kilns to replace burned structures.

Va., Petersburg.—Duplin Lumber Corp., capital \$5000, inceptd.; E. A. Robertson, Pres.; J. J. DeVine, Secy.-Treas.

METAL-WORKING PLANTS

Md., Baltimore.—Sheet Metal.—Jos. E. Watkins, Jr., 225 N. Howard St., has plans by Haskell & Barnes, 301 N. Charles St., Baltimore, for sheet-metal roofing plant at Paca and Mulberry Sts.; 17½x60 ft.; wood and brick; tin roof; gas and electric light; freight elevator; cost about \$14,000. (Lately noted, under Miscellaneous Factories, with owner's name withheld.)

Va., Richmond.—Aluminum Spoon.—Miss S. B. Willis, Route 9, contemplates manufacture of patented kitchen spoon, with improved handle. (See Machinery Wanted.)

MINING

Ark., Pike County.—David Whitaker (Secy.-Treas. Wilmington Paper Co.), Wilmington, Del., and John Weber, Omaha, Neb., purchased 40 acres land reported to contain diamond deposits and will develop; later may organize company.

Mo., Saginaw.—Lead and Zinc.—Saginaw Land & Mining Co. (P. E. Tabor and F. E. Weeks of Poplin, Mo., and others) is re-

ported to expend \$30,000 to \$40,000 in development of 746-acre mining lease; present development plans call for 100-ton custom mill and subleasing of ground.

Tex., McKinney.—Marble.—Texas Marble Co. will be inceptd. with \$100,000 capital stock to develop marble deposits on 50-acre tract; W. W. McDowell, Agent.

Va., Bristol.—Clinchfield Mineral & Milling Corp. increased capital stock from \$300,000 to \$750,000.

MISCELLANEOUS CONSTRUCTION

D. C., Washington.—Conduit System.—Washington Ry. & Electric Co., 14th and E. Capitol Sts., petitioned Public Utilities Com. for authority to issue \$664,000 bonds, \$100,000 of which is to be expended to install underground conduit system on Nichols Ave., Anacostia, from Anacostia Bridge to Talbert St.

Fla., Winterhaven.—Canal.—Twenty Lakes Boat Course Club will develop 100-mi. motorboat course by connecting 20 lakes; plans 20-ft. canal for 4 feet of water; will soon ask bids; information by Lyeurgus Burns, V.-P. and Gen. Mgr., Peace Valley Farms Co., Bartow, Fla. (See Drainage Systems, Fla., Bartow.)

Ky., Maysville.—Dam.—Government will construct lock and dam No. 33, Ohio River, near Maysville; bids received at U. S. Engr. Office, H. Jervy, Lt.-Col., Engrs, Cincinnati, O., until Jan. 26. (See Machinery Wanted.)

Ky., Pineville.—Heating, Plumbing, etc.—City let contract for heating, plumbing and electrical equipment for new high school to Richmond Heating & Plumbing Co., Richmond, Ky.; 5500 ft. American direct radiation. (This is reawardment of contract.)

Fla., St. Petersburg.—Jetties.—Edwards Construction Co. of Tampa is lowest bidder to construct jetties at entrance of Bayboro harbor, St. Petersburg; length about 900 ft.; \$10,000 available; W. B. Ladue, Major, Engineers, Jacksonville. (Call for bids lately noted.)

Ga., Augusta.—Levee.—City will construct Section No. 4 on earth levee, requiring 250,000 cu. yds. of earth fill and 20,000 cu. yds. excavation; River and Canal Com., 747 Broad St., receives bids until Jan. 19; also at same time to construct 960 lin. ft. reinforced concrete box sewer, 7x4½ ft.; 420 lin. ft. 48-in. brick sewer; 530 lin. ft. 42-in. brick sewer, 760 lin. ft. 36-in. brick sewer; 330 lin. ft. 24-in. pipe sewer; Nisbet Wingfield, Ch. Engr., 747 Broad St. (See Machinery Wanted.)

Md., Baltimore.—Dredging.—City invites bids until Jan. 13 for dredging; O. F. Lackey, Harbor Engr. (See Machinery Wanted.)

Md., Baltimore.—Dredging.—City will dredge main channel north from Lazaretto Light to piers of transatlantic liners; bids until Jan. 20; about 2,000,000 cu. yds. dredging; John Hubert, Acting Pres. Board of Awards; O. F. Lackey, Harbor Engr. (See Machinery Wanted.)

Miss., Meridian.—Subway.—City is having plans prepared for subway on one of avenues leading from Front to A St. Address The Mayor.

Miss., Vicksburg.—Levee.—Government let contract H. B. Blanks & Co. for 630,000 cu. yds. levee enlargement below Greenville; Maj. J. R. Slattery, Third Dist. Engr.'s office. (Call for bids and further facts lately noted.)

Mo., St. Joseph.—Mausoleum.—Western Mausoleum Co., capital \$100,000, inceptd. by O. C. Steinheuser, F. A. Moore and A. H. McDonald.

Tenn., Memphis.—Levees.—Mississippi River Com. will probably let contracts to construct 710,000 cu. yds. levee work in Upper St. Francis, Lower St. Francis and White River levee districts, as follows: L. T. Callahan, Fulton, Ky., 2 contracts in Upper St. Francis Dist., 1 for 100,000 cu. yds. enlargement work and 1 for 90,000 cu. yds.; T. J. Woods of Memphis for 200,000 cu. yds. enlargement and banquet work, and R. L. Leonard of Memphis for 200,000 cu. yds. of enlargement in Lower St. Francis Dist.; F. L. Carter of Memphis for 120,000 cu. yds. enlargement work below Modoc, Ark., in White River Dist.; E. M. Markham, Maj., Engrs. (Call for bids lately noted.)

Tex., Beaumont.—Wharf.—Magnolia Petroleum Co., E. R. Brown, V.-P. and Gen. Mgr., Corsicana, Tex., will erect wharf, for loading oil, on additional land lately purchased.

Va., Newport News.—Pier.—Chesapeake Ferry Co. leased site on which to build pier.

Va., Newport News.—Breakwater.—Old Dominion Land Co., W. B. Livezey, Pres., Hotel Warwick Bldg., contemplates starting in spring to construct concrete seawall (or breakwater) lately mentioned and fully described in May; plans and specifications prepared and approved.

MISCELLANEOUS ENTERPRISES

Ark., Little Rock—Stone Crusher.—Pulaski Stone Co. has decided details for rebuilding State rock crusher; daily capacity 300 to 500 yds. rock; electric power. (Lately noted.)

Ga., Macon—Printing, etc.—The Lyle Co., capital stock \$2500, inceptd. by J. B. Lyle, P. O. Holliday and others.

La., Southport, P. O. at New Orleans—Steamship Line.—New Orleans Cuban Steamship Co., capital stock \$50,000, inceptd. by J. M. Van Derveer, E. L. Powell and H. M. Mims.

Md., Baltimore—General Contracting.—Anderson Construction Co. will incorporate with capital stock \$10,000; S. V. R. Malcolm, Pres.; B. Harris Henderson, Secy.-Treas., 337-41 Equitable Bldg.

Md., Baltimore.—Consolidation Coastwise Co. of Massachusetts organized with \$650,000 capital stock; Wm. L. Andrews, Mgr. transportation for Consolidation Coal Co., Continental Bldg., is Pres.; R. C. Gillespie, V.-P., and C. H. Schanze, Supt.; acquires fleet of Consolidation Coal Co., consisting of ocean-going steamer, 4 ocean-going tugs and 18 steel and wood barges; continue freighting Consolidation coal.

Mo., Joplin—Incinerator.—City contemplates building incinerator; estimated cost, \$5000. Address The Mayor.

Mo., St. Louis—Barge Line, etc.—Board of Public Service considering plan submitted by John H. Bernhard, 244 E. 10th St., New York, representing Eastern financial interests, for establishing \$5,000,000 freight barge line on Mississippi River and constructing \$600,000 terminals.

N. C., Charlotte—Ferry.—D. N. Bennett Ferry Co., capital \$3000, inceptd. by D. N. Norwood and others.

N. C., Middlesex—Supplies.—Middlesex Supply Co., capital \$100,000, inceptd. by A. F. May, D. H. Bunn, W. S. Williams and W. T. Valentine.

Okla., Clinton—Heating.—Blue Blaze Heating Co. (lately noted inceptd., capital \$1000) organized; Albert Davidson, Pres.; R. H. Thompson, Secy., Treas. and Mgr.; at present will have work mainly done by piece and then assembled.

Okla., Oklahoma City—Typewriters.—Oklahoma Typewriter Sales Co., capital stock \$300, inceptd. by John D. E. Boaz, M. G. Muster and E. G. Phelps.

Tenn., Jackson—Printing.—Long-Johnson Printing Co., capital \$11,000, inceptd. by I. B. Tigrett, N. S. Nuckolls, J. C. Long and others.

Tenn., Knoxville—Contracting.—Fenton Construction Co. increased capital from \$10,000 to \$50,000.

Tenn., Memphis—Timber Coloring.—T. H. Sampson of New Orleans, La., is reported as contemplating equipping plant to color white sap wood to red color of gum hardwood; estimated expenditure \$5000.

Tenn., Nashville—Transportation.—Cumberland Transportation Co., capital stock \$15,000, inceptd. by John W. Welch, W. Y. Pratt, Sid F. Carr and others.

Tex., Dallas—Contracting.—Southern Building Co., capital stock \$3000, inceptd. by Frank E. Austin, D. B. Knowlton and W. O. Swift.

Tex., El Paso—Stockyards.—El Paso Union Stockyards Co., capital stock \$100,000, inceptd. by S. A. Tulloch of El Paso, T. R. Buckman, H. A. Timmon and N. G. Collins of Chicago.

Tex., Fredericksburg—Publishing.—Fredericksburg Publishing Co., capital stock \$7500, inceptd. by Adolf Gold, Alfred P. C. Putsch and Herman Usener.

Tex., Houston—Publishing.—Buckingham Publishing Co., capital stock \$1000, inceptd. by C. C. Buckingham, M. A. Buckingham and Crockett Williams.

Tex., Plainview—Cattle.—Crockett Cattle Co., capital stock \$50,000, inceptd. by W. S. Ayres, J. C. Crockett and E. Dowden.

Va., Danville—Plumbing and Heating.—Farley Plumbing & Heating Co., capital \$15,000, inceptd.; F. K. Farley, Pres.; J. M. Ley, Secy.-Treas.

Va., Richmond—Roofing, etc.—R. E. Piper Roofing Co., R. E. Piper, Secy.-Treas. (lately noted inceptd., capital \$10,000), will, for the present, operate plant formerly operated by Piper Roofing & Mfg. Co.; no improvements at present; contractors and manufacturers; roofing, sheet-metal work and waterproofing.

W. Va., Huntington—Incinerator.—City will build incinerator in eastern section. Address The Mayor.

MISCELLANEOUS FACTORIES

Ala., Clanton—Bottling.—J. C. Morris will rebuild bottling works and seedhouse reported burned at estimated loss of \$2500.

Ala., Mobile—Mobilite Paint.—New York-Mexican Whiting Co., E. H. Fleming (formerly of New York), local Mgr., is establishing plant to manufacture "Mobilite," a cold-water paint.

Ark., Little Rock—Grain-loading Device.—W. P. Rodecker is reported as contemplating organizing company to manufacture patented grain-loading device.

D. C., Washington.—National Mfg. Co., capital \$10,000, inceptd. by Walter A. Johnston, 513 Columbian Bldg.; Jno. H. Lawrence and Theodore Picard.

D. C., Washington—Medicine.—Hunyadi Split Corp., capital stock \$25,000, chartered; I. A. Falconer, Pres., 2236 Cathedral Ave. N. W.; Washington; C. H. Stephenson, Secy., Arlington, Va.

Ga., Hephzibah—Cotton Canvas Gloves.—Tranquilla Mfg. Co., J. Inman Davis, Mgr., will install machinery to manufacture cotton canvas gloves; capacity 100 doz. daily at start; buildings and power (gas engine) completed. (See Machinery Wanted.)

Ky., Louisville—Paint.—J. F. Kurfees Paint Co. is having plans prepared by Joseph & Joseph of Louisville for plant.

Ky., Winchester—Garbage Cans.—A. A. Jackson contemplates establishing plant to manufacture patented garbage can.

Ky., Woodburn—Automobile Parts (Jobbing).—Southeast Automobile Corp., H. O. Kirby, Mgr. (lately noted chartered, capital \$2000), will conduct jobbing in automobile parts, accessories and supplies.

La., New Orleans—Paint.—W. B. Utley Co. will install equipment to manufacture paint, varnish, etc.; increased capital stock from \$25,000 to \$50,000.

Md., Baltimore—Paper Mill.—Canton Co., Commerce and Water Sts., let contract to Chas. L. Stockhausen, National Marine Bank Bldg., Baltimore, to erect paper mill for use of Paper Products Co., Frank W. Waterman, Mgr., 413 Keyser Bldg., at 16th St. and 2d Ave., Canton; 192x70 ft.; brick; slag roof; electric light; cost \$10,000; Engineering Dept. Canton Co., Archt. (Lately noted.)

Md., Baltimore—Straw Hats.—Townsend-Grace Co., 209-11 W. Fayette St., let contract to Irvin & Leighton, 809 Keyser Bldg., Baltimore, to erect addition to plant and warehouse; 9 stories, 76x33 ft., and one story added to present plant; fireproof; cost \$55,000; Jos. Evans Sperry, Archt., 409 Calvert Bldg., Baltimore. (Lately noted.)

Miss., Jackson—Bottling.—Rex Bottling Co., capital \$10,000, inceptd. by O. E. Jones, J. E. Davis and others.

Mo., Kansas City—Distillery.—Ure Distilling Co., capital \$5000, inceptd. by Sam Josephson, Robt. Laykin and Stephen A. Thomas.

Mo., St. Louis—Folding Boxes.—American Folding Box Co., capital stock \$3500, inceptd. by Thos. P. Carroll, Jos. A. Neumann and Chas. A. Neumann.

Mo., St. Joseph—Biscuits.—Royal Biscuit Co., capital stock \$75,000, inceptd. by H. F. Fox, F. B. Griffin and S. S. Allen.

Mo., St. Louis—Millinery Specialties.—Shield-Porter Millinery Specialty Co., capital stock \$15,000, inceptd. by Julian S. Shield, Dan J. Porter and Jacob C. Hutch.

Okla., Blackwell.—Antitoxidine Co., capital stock \$20,000, inceptd. by M. L. Harris, Ray Ostot and M. E. Buellfeld.

Okla., Oklahoma City—Patent Bulletins.—Peerless Patent Bulletin Co., capital \$20,000, inceptd. by V. V. Campbell, F. Wagar and Jas. T. Sample.

S. C., Georgetown—Bottling.—Georgetown Coca-Cola Co., capital stock \$5000, inceptd. by J. E. McQuade and Capers G. Barr.

S. C., Greenville—Ice-cream.—Stavron Bros. are reported to establish ice-cream factory.

S. C., Spartanburg—Ice-Cream.—Hallett Ice & Coal Co. inceptd. by W. B. Hallett and others; will install equipment to manufacture ice-cream. (See Ice and Cold-Storage Plants.)

Tex., Denton—Peanut Products.—Denton Chamber of Commerce, Geo. J. Roark, Secy., is interested in proposition to install machinery to manufacture peanut by-products; machinery to be added to equipment of cottonseed-oil mill. (See Machinery Wanted.)

Tex., San Antonio—Fuel Briquettes.—Oakal Mfg. Co. will manufacture fuel briquettes in lately-described buildings; has closed contract with city for its garbage.

Tex., Sherman—Medicine.—Richards Medicine Co., capital stock \$100,000, inceptd. to continue manufacturing; will increase facilities of plant; C. E. Craycroft, Gen. Mgr.

Va., Lynchburg—Tobacco.—Booker Tobacco Co. changed name to Standard Tobacco Co. and increased maximum capital stock from \$50,000 to \$200,000.

Va., Richmond—Shrapnel.—Fritz Sitterding and associates are reported as organizing company to establish plant for manufacturing shrapnel for shipment to Europe.

W. Va., Chester—Tires and Rubber.—Chester Rubber & Tire Co., capital stock \$2,000,000, inceptd. by Phillip Freshwater, J. C. Freshwater, A. L. Skinner and others.

MOTORS AND GARAGES

Ky., Louisville—Service Building.—Ford Motor Co., Detroit, Mich., is having plans and specifications for lately-noted building prepared by Albert Kahn, Archt., Detroit, Mich.; plans to be ready about Feb. 1.

Mo., Kansas City—Automobiles.—Butler Motor Co., capital stock \$20,000, inceptd. by John A. Butler, Frank L. Weaver and Frank N. Thompson.

Tenn., Shelbyville—Garage.—Jacobs Auto Co. (D. L. and J. P. Jacobs) will rebuild garage lately noted burned; erect 50x100 ft. fireproof building; install equipment; needs air compressor and generator for recharging storage battery. (See Machinery Wanted.)

Tex., Galveston—Garage, etc.—Model Laundry Co. let contract Eubank & Dibrell of Galveston at \$12,499 to erect addition for garage, stable, etc.; Archt., L. S. Green. (See Miscellaneous under Building News, Contracts Awarded.)

RAILWAY SHOPS, TERMINALS, ROUNDHOUSES, ETC.

Fla., Jacksonville—Atlantic Harbor R. R. Co., capital stock \$50,000, inceptd.; plans include constructing terminal facilities, bridges, viaducts, etc., in connection with building of railroad between Jacksonville and Fort George Island; preliminary survey and alignment maps by Ellis, Curtis & Kooker, Jacksonville; Geo. W. Percival, Pres., Atlantic City, N. J.; Francis B. McGarry, V.-P., Jacksonville.

ROAD AND STREET WORK

Ala., Birmingham—City Com. adopted ordinance No. 561-C, providing for improvements on 25th St., Ensley, from 23d to 25th Ave.; estimated cost \$4200.

Ala., Mobile—Fay McClure, County Highway Engr., submitted report to Board of Revenue and Road Comms. estimating cost of improving north side of Spring Hill Ave. from Crichton to Moffat Rd. at \$207,550; recommends expenditure of \$12,000 for oiling roads and \$5000 additional for general maintenance of roads and bridges; estimates cost of completing roads now under contract at \$15,600.

Ala., Tuskegee.—City, E. M. Thompson, Mayor, will make lately-noted street improvements; \$19,000 available; about 3 mi. street graveling and 10,000 ft. cement curbs and gutters; open bids Jan. 14 for curbs and gutters; street bids later; Tuscaloosa Concrete & Construction Co., Tuscaloosa, Ala., Engr. (See Machinery Wanted.)

Ark., Little Rock—Pulaski county will organize Road Dist. No. 6 and construct about 10 mi. macadam road; Dist No. 238 contemplates constructing 6000 sq. yds. asphalt on concrete base. Address County Comms.

Fla., Bradenton.—City will grade, place granite curbing and pave with vitrified brick portions of Chandler, Adams, Willow and Jefferson Sts., Vermont Pl. and 5 alleys; W. H. Tracy, Commr. of Public Works, receives bids until Jan. 8. (See Machinery Wanted.)

Fla., Jacksonville.—City will pave Parker St. from Beaver to Wambolt St. to width of 40 ft. Address The Mayor.

Fla., Tavares.—Lake County Comms., A. L. Russell, Chrmn., continued letting of contract for 200 mi. road construction; bids lately noted to be opened Dec. 31; will not be ready to advertise bids for 60 days; J. B. McCrary Co., Engr., Third National Bank Bldg., Atlanta, Ga.

Ga., Macon.—City votes March 4 on \$100,000 bonds to pave streets; property owners to pay two-thirds of cost, making total expenditure \$300,000; J. J. Gaillard, City Engr. (Lately noted.)

Ga., Savannah.—City Council appropriated \$50,000 for street paving during 1915; this amount to be supplemented by \$100,000 from property owners. Address The Mayor.

Ky., Barbourville.—Knox county contemplates voting Feb. 15 on \$200,000 bonds to construct roads. Address County Comms.

Ky., Craftsville.—J. J. Brady will build 3 mi. roadway between Kona and Neon coal fields; will need machinery.

Ky., Paducah.—McCracken county will widen Hinkleville Rd. to 100 ft. and extend

to Cairo Rd., about 4 mi. Address County Comms.

La., Covington.—St. Tammany Parish Police Jury let contract Arthur Dotten, Houltenville, La., at \$24,068 to construct road to Pearl River.

Md., Baltimore.—State Roads Com., 601 Garrett Bldg., will construct 1.5 mi. sheet asphalt paving for Hanover St. bridge and approaches, Contract No. Be-17, Sec. 6; Wm. L. Marcy, Secy. of Com. (See Road and Street Work.)

Md., Baltimore.—Maryland State Roads Com., O. E. Weller, Chrmn., 601 Garrett Bldg., will construct about 10.56 mi., 5 sections, State highway in Garrett, Prince George's, Queen Anne's and St. Mary's counties; bids until Jan. 19. (See Machinery Wanted.)

Md., Baltimore.—Paving Com. let contract M. J. Beach & Co., 8 Beck Lane, at \$4518.80 to pave Latrobe St. from Lafayette Ave. to Oliver St. with vitrified brick; 1880 sq. yds. (Call for bids lately noted.)

Md., Baltimore.—State Roads Com., 601 Garrett Bldg., will let contract American Paving & Contracting Co., Montebello Ave. and Baltimore & Ohio R.R. (lowest bidders), at \$22,778 to pave Cathedral St. from Madison St. to Mt. Royal Ave. with sheet asphalt, and to Betz & Boyce of Albany to construct Annapolis Blvd. from Glenburnie to Pumphreys Station, 3½ mi., with macadam or concrete; bids for macadam is \$38,730 and for concrete, including grading and concrete culverts, \$12,272. (Call for bids lately noted.)

Md., Baltimore.—Paving Com., R. Keith Compton, Chrmn., City Hall, decided to pave Baltimore St. from Fallsview to Broadway with asphalt and granite block; Eastern Ave. from Broadway to Patterson Park Ave. and from eastern city limits to Ellwood Ave. with sheet asphalt; Patterson Park Ave. from Pratt to Essex St. with sheet asphalt; repave German St. from South to Light St. with wood blocks, with granite blocks between car tracks, and from Light to Euraw St. with recut granite blocks; Lombard St. from Poca St. to Hopkins Pl., new granite blocks.

Md., Catonsville.—Schatz Bros., Catonsville, will construct 2000 sq. yds. cement sidewalk and 10,000 sq. yds. macadam streets.

Miss., Collins.—Covington County Supvs. authorized issue \$16,000 bonds to construct roads.

Mo., Potosi.—Washington County Potosi Special Road Dist. Comms. engaged W. R. Haegler, Civil Engr., to make surveys and plans for road construction.

N. C., Danbury.—Stokes county, Quaker township, votes Jan. 19 on \$50,000 bonds to construct roads. Address County Comms.

N. C., Pittsboro.—Chatham county, Cape Fear township, is reported as contemplating issue of bonds to construct roads. Address County Comms.

N. C., Yadkinville.—Yadkin county is reported as contemplating voting on bonds to construct roads. Address County Comms.

Tenn., Chattanooga.—Hamilton county will grade and chert roads; Cassandra Smith Rd., Second Dist.; Dougherty's Ferry Rd., Seventh Dist.; McCallie's Ferry Rd., Third Dist.; road from Birds Mill Rd. to Chickamauga Station, east of Chickamauga Creek; McBriant Rd., Fifth Dist.; Dobbs Rd., Fifth Dist.; Harrison pike, Sixth Dist.; Road Comms. (R. H. Crox and others) invite bids until Jan. 6. (See Machinery Wanted.)

Tenn., Greeneville.—City, D. P. Mason, Mayor (lately noted to pave streets), will have about 8000 sq. yds. slag and glutrin paving done under supervision of Robertson Process Co., Bristol, N. J.; L. M. King, agent.

Tenn., Jonesboro.—Washington County Road Dist. (comprising 8th, 9th, 10th, 11th and 12th civil districts of Washington county and 6th civil district of Carter county) has had surveys made of about 60 mi. of roads preparatory to macadamizing; roads all lead out from Johnson City and will connect Sullivan, Carter and Unicoi counties with Johnson City. Address County Comms.

Tenn., Dayton.—Rhea County Road Bond Com. will sell \$250,000 bond issue and arrange to construct roads.

Tenn., Jonesboro.—Washington county is reported as contemplating voting on \$300,000 bonds to construct roads. Address County Comms.

Tex., Abilene.—City will expend \$3000 on lately-noted street graveling; about 5 blocks; bids have been opened; H. J. Bradshaw, Engr.

Tex., Bonham.—Fannin County Comms. let contract Owens Construction Co. of

Vicksburg, Miss., at \$66,488.42 to construct 14 mi. roads. (Call for bids lately noted.)

Tex., Bryan.—Brazos county defeated \$600,000 bonds to construct roads. (Lately noted.)

Tex., Dallas.—City let contract Cullem & Bayouset Co. at \$13,603 to pave Elm St. from Ervay to Harwood and St. Paul St. from Elm to Pacific.

Tex., Dallas.—City let contract Dallas Paving Co. to lay sidewalks on north side of Elm and St. Paul Sts.

Tex., Denton.—City contemplates voting on \$10,000 bonds to improve streets. Address The Mayor. (See Water-works.)

Tex., Fort Worth.—City let contract Roach & Manigan Paving Co. of Fort Worth and Memphis, Tenn., at about \$235,000 for 100,000 sq. yds. asphaltic concrete paving.

Tex., Galveston.—City let contract P. J. Vautrin at \$3013 to pave alleys between Aves. F and G from 23d to 24th St. and between Aves. E and F from 20th to 21st Sts., with brick.

Tex., Houston.—City Council appropriated \$400 to gravel Quitman St. from Chestnut to Thomas St., and Thomas St. from Quitman St. to its north end; contractor, F. D. Horton & Son of Houston.

Tex., Mt. Pleasant.—City let contract Bert Hahn Construction Co. of Dallas to pave 10 blocks with Oklahoma rock asphalt; cost about \$20,000.

Tex., Mission.—City invites bids on 18,000 lin. ft. cement sidewalks, gutters and curbing estimated to cost \$30,000; Willard Ferguson, Mayor.

Tex., Paris.—City, Ed. H. McCuiston, Mayor, voted lately-noted \$100,000 bonds for street improvements.

Tex., San Antonio.—City let contract Southwell-Reynolds Construction Co. to pave section of N. Flores St. from Houston to Romano St. with creosoted wood blocks; to Texas Bitulithic Co. to pave section between Romano and Laurel St., and O. C. Chapin, section between Laurel St. and Woodlawn Ave.

Tex., San Benito.—City votes Feb. 2 on \$300 bonds to improve streets. Address The Mayor.

Tex., Sherman.—City let contract Levy & Levy, Muskogee, Okla., for recently-described 2 mi. paving; E. D. Lumsden, City Engr.; \$25,000 available for the paving and 10 mi. sewer construction; sewer work being done by city. (Bids lately noted.)

Va., Grundy.—Buchanan County Supvrs. will build road from Grundy up Big Prater via Davenport or mouth of Hurricane to top of Big Arce Mountain, connecting with macadamized road from Lebanon; will grade and probably macadamize; W. P. Dennis, Clerk Circuit Court.

Va., Norfolk.—City let contract Louis Lawson at \$216 to pave streets in old Ninth ward.

Va., Richmond.—Richmond-Washington Highway Corp., Henry W. Anderson, Pres., will arrange to finish 12 mi. of uncompleted highway between Richmond and Washington.

W. Va., Jacksonburg.—Wetzel County, Grant Dist., will construct portion of Arched Fork Rd. from bridge across South Fork of Fishing Creek up Arched Fork for about 1500 ft.; 1436 cu. yds. excavation; bids until Jan. 9; Smith Blair, Secy. Road Comms. (See Machinery Wanted.)

SEWER CONSTRUCTION

Ala., Birmingham.—City Com. adopted ordinance No. 864-C, providing for construction of sanitary sewers in Enon Ridge Dist.; estimated cost \$12,500.

Ala., Birmingham.—City Com. adopted ordinance for construction sanitary sewers vicinity of East Woodlawn and Gate City; estimated cost \$21,000; about 5½ mi.; Julian Kendrick, City Engr.

Ark., Benton.—City, R. C. Bailey, Mayor, will call election about Jan. 15 to vote on \$100,000 bonds to construct sewer system and water-works; engaged J. B. McCrary Co., Atlanta, Ga., as preliminary engineer.

Ark., Harrison.—City, Geo. C. Frew, Mayor, postponed bond election until March or April. (Previously noted to vote Dec. 22 on \$90,000 bonds to construct sewer system and enlarge water-works.)

Ga., Hawkinsville.—City contemplates voting on \$10,000 bonds to extend sewer system. Address The Mayor.

Ga., Louisville.—City let contract to Macon Engineering & Construction Co., Macon, Ga., to install sewer system and extend water system; work to begin Jan. 4; Crook

& Lanneau, Macon, Consult. Engrs.; bond issue \$12,000. (Previously noted.)

Ga., Macon.—City votes March 4 on \$50,000 bonds to construct sewers; J. J. Gaillard, City Engr. (Lately noted.)

Md., Baltimore.—City let contract Ryan & Reilly Co., 612 Union Trust Bldg., at \$81,515.50 to construct lateral sewers in Northeast Baltimore. (Lately noted call for bids.)

Md., Laurel.—City will construct sewage-disposal works; plans by Harry Stevens, 208 Union Trust Bldg., Washington, D. C. (See Water-works.)

Md., Ocean City.—Pugh & Hubbard, Civil Engrs., 601 Witherspoon Bldg., Philadelphia, Pa., prepared plans for sewer system and disposal plant.

Mo., Carthage.—City will construct sewers; estimated cost, \$18,500; 5835 ft. 10-in. 2620 ft. 12-in. and 5570 ft. 15-in. tile; open bids Jan. 11; Frank B. Newton, Engr. (See Machinery Wanted.)

Mo., Springfield.—S. Fisher, City Engr., is reported as preparing plans for sewer in Eighth ward; cost about \$30,000. (Lately noted.)

S. C., Columbia.—City is having plans prepared by Fred C. Wyse, Engr. of Water-works Dept., for extension of sewer and water mains; L. A. Griffith, Mayor. (See Water-works.)

Tenn., Binghamton.—Town let contract J. W. Blake at \$8000 to extend sewer and water systems.

Tex., Cleburne.—City is reported as having plans prepared by Burns & McDonnell of Kansas City, Mo., for sewer system. (Lately noted to vote on bonds.)

Tex., El Paso.—City will extend sewers to county hospital. Address The Mayor.

Tex., San Benito.—City votes Feb. 2 on \$5000 bonds for sewage-disposal plant. Address The Mayor.

Tex., Sherman.—City is constructing (by city force) about 10 mi. sewer extension; E. D. Lumsden, City Engr. (See Road and Street Work.)

Tex., Texarkana.—City is reported to construct storm-sewer system. Address The Mayor.

Tex., Waxahachie.—City, E. B. Prince, Mayor, voted on amendment providing for bonds for sewage-disposal plant; will act relative to the plant within the next year, but not within next six months.

W. Va., Moorefield.—City voted \$8000 bonds to construct sewer system. Address The Mayor.

TELEPHONE SYSTEMS

Va., Blackstone.—Southside Virginia Telephone Co. is change of name from Blackstone Telephone Co.; capital stock \$12,500; system equipped.

TEXTILE MILLS

Ga., Lagrange.—Cotton Specialties.—Hillside Cotton Mills, Fuller E. Callaway, Treas., is preparing to construct buildings; inviting prices on large quantities of building material to include between 2,000,000 and 3,000,000 bricks, lumber, concrete materials, etc.; mill machinery will include spindles, looms, steam power plant, rope drive, etc.; Park A. Dallis Co., Archt.-Engr., Atlanta, Ga., preparing plans and specifications; Hillside company lately noted incorporated with \$500,000 capitalization, etc. (See Machinery Wanted.)

N. C., Lexington.—Cotton Cloth.—Erlanger Cotton Mills will enlarge plant; let building contract to W. Lee Harbin, Lexington; erect 294-ft. extension to 662-ft. building, which is 387 ft. long, 1 story high, for weaving, and 275 ft., 2 stories high, for spinning; all 132 ft. wide; add 15,400 spindles and 420 looms to present equipment of 25,600 ring spindles and 686 broad looms; also will build 30 operatives' cottages with water, sewer and electric-lighting facilities; all to cost about \$400,000.

Va., Norfolk.—Dress and Tie Silks.—Norfolk Silk Mills, capital \$50,000, inceptd.; Woodbury Seamans, Pres., New York; J. P. Audne Mottu, V.-P., Norfolk; O. C. Kunze, Secy., Newark, N. J.; purchased mill at Lambert's Point; will increase capacity; manufacture dress and tie silks.

Va., Suffolk.—Knit Goods.—Suffolk Knitting Mills, capital \$50,000, inceptd.; E. W. Cobb, Pres.; A. H. Cobb, Secy.

WATER-WORKS

Ark., Benton.—City, R. C. Bailey, Mayor, engaged J. B. McCrary Co., Atlanta, Ga., for preliminary engineering for proposed sewer system and water-works construction; bond issue of \$100,000 contemplated. (See Sewer Construction.)

Ark., Harrison.—City, Geo. C. Frew, Mayor, postponed bond election until March or April. (Previously noted to vote Dec. 22 on \$90,000 bonds to purchase and enlarge water-works and construct sewer system.)

Ark., Van Buren.—Van Buren Water Co. will improve water system at cost of about \$7500; enlarge reservoir on City Heights and lay larger and additional mains, including 10-in. main from reservoir to city to replace present 6-in. pipe, 1200 ft. 6-in. pipe across Pennywit St., and 4000 ft. 4-in. pipe toward Ray Addition.

D. C., Washington.—Melton Construction Co., 1012 H St. N. W., is lowest bidder at \$18,100 to build repair shops at 2d and Bryant Sts. N. W. for Water Dept. (Lately noted.)

Fla., Seabreeze.—City let contract F. S. Perham, Jacksonville, Fla., to construct previously-noted water-works; voted \$15,000 bonds; C. M. Rogers, Engr., Daytona, Fla.

Fla., Tarpon Springs.—City invites bids until Jan. 5 for water-works material, to include 3552 ft. 8-in. cast-iron pipe, 4404 ft. 6-in. cast-iron pipe, etc.; A. P. Albaugh, Pres. of Council. (See Machinery Wanted.)

Ga., Atlanta.—Water Com. has asked in annual report for \$500,000 for 2 pumps; W. Zede Smith, Gen. Mgr.

Ga., Louisville.—City let contract Macon Engineering & Construction Co., Macon, Ga., for water-works extension; Crook & Lanneau, Macon, Consult. Engrs.; previously noted. (See Sewer Construction.)

Ga., Toccoa.—City, Thos. Sprinkle, Chrmn. Street Committee, let contract for lately-noted water-main extension; cost \$3000.

Ky., Fulton.—City contemplates improving water-works. Address The Mayor.

Ky., Louisville.—Louisville Water Co., W. O. Head, Pres., is having plans prepared for 48-in. water main from river station to Crescent Hill reservoir; estimated cost \$175,000; when completed may install additional pump.

Ky., Rockport.—Rockport Coal Co. received lately-granted franchise to construct water-works for company's use and not for public system.

Md., Laurel.—City will construct distributing system, filtration plant and sewage-disposal works; estimated total cost \$50,000; plans by Harry Stevens, 208 Union Trust Bldg., Washington, D. C.

Md., Tacoma Park, P. O. at Washington, D. C.—Water and Sewer Com. recommended to Town Council adoption of general plan for reservoir and improvement of water-works; cost about \$10,000; plans by Harry Stevens, 208 Union Trust Bldg., Washington.

Mo., Springfield.—Springfield Water Co. is reported to make improvements costing \$100,000.

Mo., St. Louis.—Director of Public Utilities plans construction pipe line 8 mi. long to new industrial school at Fort Bellefontaine to supply water; estimated cost \$40,000.

S. C., Charleston.—Jos. C. Barbot, Clerk of Council, states concerning lately-noted plan to purchase plant of Charleston Light & Water Co. at \$1,500,000: City Council adopted report of Comm. on Water Supply recommending the purchase and extension of service, but a vote at general election and certain enactments by State Legislature are also necessary.

S. C., Columbia.—City is having plans prepared by Fred C. Wyse, Engr. of Water-works Dept., for extension of water and sewer mains; plans call for 9½ mi. of water mains in North Columbia, Waverley and Shandon; several miles of water and sewer mains in western section of city embraced in former city limits and 10½ mi. sewers for Shandon and Waverley; second instalment of work will be for water and sewer mains in North Columbia and North Waverley; L. A. Griffith, Mayor. (Lately noted.)

S. C., North Augusta.—North Augusta Water & Gas Co. organized with Jas. U. Jackson, Pres.; Wm. R. Dawson, V.-P.; Clifford R. Dawson, Secy.-Treas.; purchased North Augusta water-works properties and will improve; contractor, Paul Bush; company also contemplates building gas plant. (Lately noted inceptd. with \$50,000 capital.)

Tenn., Binghamton.—Town let contract J. W. Blake at \$9000 to extend sewer and water systems.

Tex., Cooper.—Citizens' Water Co. let contract A. A. Snell of Houston at \$3000 to drill well to produce 150,000 gals. water daily.

Tex., Denton.—City contemplates voting on \$110,000 bonds as follows: \$10,000 to extend water and light systems; \$2000 to build settling tank of 300,000 gals. capacity; \$10,000 to improve streets; \$15,000 for fire appa-

tus; \$73,000 to erect and improve school buildings. Address The Mayor.

Tex., El Paso.—City will extend water main to county hospital. Address The Mayor.

Tex., Mission.—City is reported as contemplating voting in February on bonds for water-works and electric-light plant; Willard Ferguson, Mayor.

Tex., Sweetwater.—City, Geo. T. Wilson, Mayor, will open and consider proposals Jan. 20 (3 separate proposals) on 6-mi. gravity conduit, 12 in. diam.; 250,000-gal. steel stand-pipe, 28 ft. diam. and 60 ft. high; hydrants, valves, meters, etc.; water-works lately noted as costing \$320,000, capacity 1,500,000 gals. daily, and reservoir about 75 per cent. completed; M. M. Cooke, Engr., Sweetwater. (See Machinery Wanted.)

Va., Claremont.—Claremont Water Co. will construct water-works; let contract. Address The Mayor.

W. Va., Shady Side, P. O. at Wheeling.—City is reported to vote on \$45,000 bonds for water-works. Address The Mayor.

WOODWORKING PLANTS

Ark., Blytheville.—A. D. Cook, Lawrenceville, Ind., states he does not contemplate establishment of plant at Blytheville. (Recent report incorrect.)

Ark., Earle.—Cooperage.—Bailor Cooperage Co., capital stock \$23,000, inceptd.; L. B. Bailor, Pres.; E. A. Powell, V.-P.; H. L. LaNieve, Secy.-Treas.

Ark., Malvern.—Veneer.—Van Veneer Co. (lately noted inceptd., capital stock \$15,000) organized; H. A. Van Dusen, Pres. and Mgr.; J. G. Greene, V.-P.; R. E. Van Dusen, Secy.-Treas.; install machinery for rotary veneer plant; daily capacity 8000 ft. pine, gum and oak logs.

Ark., Marked Tree.—Handles.—T. J. Turner contemplates rebuilding burned handle factory.

Ark., Proctor.—Hoops.—Diamond Hoop Co., capital stock \$10,000, inceptd.; David L. Watson, Pres.; E. Mussell, Secy.-Treas.; L. W. Watson, Mgr.; repair erected building; later will need electric equipment and drag saw. (See Machinery Wanted.)

Fla., Titusville.—Doors, etc.—J. E. Easterly will install equipment in building 24x60 ft. to manufacture doors, sashes, window frames, etc.; purchased 6-H. P. engine.

Ky., Cornettsville.—Staves.—Crescent Stave Co., Winchester, Ky., purchased 500 acres oak timber; reported to install new mill.

Ky., Louisville.—Chairs.—W. E. Ross acquired entire control of Ross Chair Mfg. Co. and contemplates organizing new company with capital stock of from \$150,000 to \$200,000; contemplates various improvements to plant; J. E. Fawcett of E. Q. Smith Chair Co., Evansville, Ind., is to become Supt.

Miss., Jackson.—Veneer and Boxes.—Jackson Veneer & Box Factory, capital \$10,000, inceptd. by J. A. Roell, A. A. Case, John L. Moore and others.

N. C., Aquadale.—Excelsior, etc.—Jas. T. Brasington, care of Rocky River Springs, Aquadale, contemplates development of hardwoods and pine by establishing machinery to manufacture suitable woodworking products, probably including excelsior; wants data and prices on machinery. (See Machinery Wanted.)

N. C., Thomasville.—Chairs.—Hoover Chair Co., capital stock \$25,000, inceptd. by C. A. Burham, E. F. Westmoreland and E. F. Perryman.

N. C., West End.—Interior Hardwood Finish.—J. B. von Canon & Bro., manufacturers of yellow-pine lumber and crossarms, will add machinery to make interior hardwood finish, including inlaid floors, stairways, trim, etc. (See Machinery Wanted.)

S. C., Columbia.—Furniture.—Lind-East Mfg. Co. inceptd. by C. O. Lindfors, C. A. Eastman and C. C. Wilson.

S. C., Greenville.—Hardwood Loom Supplies.—Piedmont Hardwood Mfg. Co., Box 231, lately noted organized, capital stock \$5000, to manufacture hardwood loom supplies, acquired plant of Hallman planing mills (the latter company having taken over planing mills of Cagle Lumber Co.); Piedmont Co. has installed special equipment for loom supplies.

Tenn., Cleveland.—Chairs.—Jack Milne and others are reported to have purchased site for chair factory.

Tex., Dallas.—Veneer Products.—Hofman Box & Basket Co. (lately noted inceptd., capital stock \$15,000) organized; J. C. Silvers, Pres.; Rue O'Neil, V.-P.; Wm. Hofman,

Secy., Treas. and Mgr.; continue manufacture of veneer products—baskets, egg cases, boxes and drums; plant equipped.

Va., Salem—Staves.—Myers Stave Corp., capital \$15,000, chartered; J. Rappe Myers, Sr., Prest., Greensburg, Pa.; R. Rappe Myers, Secy., Salem, Va.

FIRE DAMAGE

Ala., Clanton.—Clanton Bottling Works, owned by J. P. Morrow, estimated loss \$2500; Kemp Bros. warehouse.

Ala., Greensboro.—John Helton's store; Mrs. R. H. Stickney's two buildings; loss \$5000.

Ala., Lipscomb, P. O. at Bessemer.—J. B. Thomas' residence.

Ala., Louisville.—Earl Hunter's residence near Louisville; loss several thousand dollars.

Ala., Marion.—Mrs. Dewitt's 2 stores; Selma Ice Co.'s building; loss \$5000.

Ark., Batesville.—Boys' dormitory at Arkansas College.

Ark., Jasper.—H. P. Eversole's store; loss \$7000.

Ark., Lake Village.—Matthews Bldg., loss \$3000; Chotard Bldg., loss \$3000.

Fla., Jacksonville.—Dyal-Upchurch Investment Co.'s building, occupied by United States Weather Bureau and others; estimated loss on building about \$85,000.

Fla., Kissimmee.—J. H. Bryan's residence.

Ga., Atlanta.—John L. Dickerson's residence at 227 Tumlin St.

Ga., Atlanta.—J. W. Volz's residence at 92 Vedado Way; P. C. Botzumayer's residence; loss \$7000.

Ga., Augusta.—R. A. Somers' warehouse.

Ga., Honora.—G. C. Leverett's store; post-office.

Ga., Kingsland.—Seaboard Air Line Ry.'s station; W. D. Faucette, Ch. Engr., Norfolk, Va.

Ga., Macon.—S. F. Amerson's store on Turpin St.

Ga., Macon.—Majestic Theater on Cotton Ave., operated by Majestic Amusement Co.

Ga., Manassas.—Jos. W. Smith's store; loss \$12,500.

Ga., Winder.—Carithers & Bros.' 2 livery and feed stables; loss \$6500.

Ky., Frankfort.—Odd Fellows' building; A. E. Heller's tailoring establishment; Sorg & Lewis' store; loss \$5000.

Ky., Greenville.—Coleman & Vick's stable; loss \$4000.

Ky., Louisville.—J. M. Davis' residence at 4622 S. 3d St., loss \$5000; Jos. Lee Gore's residence, 4624 3d St., loss \$9000.

Ky., Louisville.—J. E. Sicking's tinshop, garage and stable at 3022 Virginia Ave.

Ky., Louisville.—Joseph Landau's apartment building at 1615 S. 3d St.; loss \$9000.

Ky., Louisville.—Henry Vogt Machine Co.'s plant partially destroyed; estimated loss \$90,000.

Ky., Paducah.—M. M. Tucker's residence; loss \$3000.

La., Minden.—Brian Bldg., occupied by Webb & Butler and owned by Misses Mary and Ella Brian of New Orleans; loss \$20,000.

Md., Baltimore.—Building at 16 S. Howard St. and 306 W. German St., owned by J. H. Rieman estate and occupied by Har Suit Co., Sarbagher & Co. and Interstate Tailoring Co.; loss on building \$5000.

Md., Baltimore.—Gwynn Oak Club, Gwynn Oak Uplands, burned at reported loss of \$6000; Linwood L. Clark, 215 St. Paul St., owner.

Md., Baltimore.—Warehouse at 219 S. Charles St. damaged. Address Jas. J. O'Connor, 427 E. Lexington St., Baltimore.

Md., Baltimore.—Warehouse of Geo. Behm & Sons, 2100 Boston St.

Md., Elkton.—Carriage factory owned by W. Arthur Mitchell and occupied by M. S. Barrett.

Md., Easton.—Geo. Junkin's cow barns on Galloway stock farm, about 1 mi. from Easton; loss about \$10,000.

Md., Frostburg.—Isaac J. Shearer, Jr.'s, store building, owned by Mrs. Eliza Grox of Cumberland, Md.

Md., Guilford.—James Burger's residence; loss \$3000.

Md., Texas.—Baltimore County Almshouse; loss \$10,000 to \$12,000. Address County Commissioners, Towson, Md.

Mo., Greenfield.—Greenfield Dry Goods Co.'s store; loss \$10,000.

Mo., Salem.—Johns Hotel; Salem Garage; Christian Church (address The Pastor); E. L. Vernon's bungalow; total loss \$50,000.

Mo., St. Louis.—Mrs. Anna Inman's residence at 4000 Washington Ave.; loss \$4000.

N. C., Asheville.—R. C. Clayton's residence in Cane Creek Valley; loss \$5000.

N. C., Asheville.—Mrs. B. F. Wilson's residence on Harding pike, about 4 mi. from Asheville; loss \$50,000 to \$75,000.

N. C., Concord.—Charles Foll's store at Midway; building owned by B. L. Umberger.

N. C., Franklin.—Cowee high school. Address School Trustees.

N. C., Lexington.—Lexington Hardware Co.'s building and warehouse in rear; loss \$22,000.

N. C., Morven.—Three buildings owned by M. W. Mowery; loss about \$3500.

Okla., Dewey.—L. N. Brown's store; G. A. Layman's cafe.

Okla., Oklahoma City.—J. W. Jenkins Sons' Music Co.'s building, J. W. Jenkins, Prest., Kansas City, Mo.; loss \$35,000.

Okla., Talala.—St. Louis, Iron Mountain & Southern Ry. Co.'s freight and passenger depot; J. R. Stephens, Ch. Engr., St. Louis, Mo.

S. C., Barnwell.—Dwelling on Hagood St., occupied by W. T. Still and F. H. Creech.

S. C., Bennettsville.—J. W. Perkins' building; D. D. McColl's building; A. J. Matheson's building.

S. C., Blenheim.—Blenheim Drug Co.'s store; loss several thousand dollars.

S. C., Dillon.—I. I. Fass Co.'s store; loss \$12,000.

S. C., Greenwood.—Crescent Theater.

S. C., Lesslie.—W. Joe Williams' residence; loss \$3000.

S. C., Newberry.—Rev. E. Pendleton Jones' residence.

S. C., Olanita.—H. W. Tomlinson's building; E. W. Willis & Son's store.

Tenn., Clarksville.—Elder's Opera-house, owned by Clarksville Theater Co., loss \$15,000; Clarksville Coca-Cola Works, owned by M. W. Elder, loss \$5000; H. T. Grizzard's store, loss \$15,000; Perkins & Grizzard Hardware Co.'s store, owned by M. W. Elder, loss \$5000; J. E. Elder's building, loss \$7000; Lillian Motion Picture Theater, owned by Joe Goldberg, loss \$25,000.

Tenn., Crossville.—C. G. Black's residence; loss \$7000.

Tenn., Cumberland City.—McIntosh & Wickham's store and grist mill; loss \$5000.

Tenn., Dyersburg.—Mrs. Montie Foster's residence, occupied by Tom Ferguson; loss \$4000.

Tenn., Knoxville.—McMillan Memorial Chapel at Knoxville Colored College; loss \$3000.

Tenn., Lewisburg.—Buildings owned by Mrs. Eliza Irvine and occupied by C. T. Tillman and Johnson & Sons; loss \$5000.

Tenn., Memphis.—Building occupied by Patterson Transfer Co. and Galloway Coal Co.; loss about \$30,000.

Tenn., Memphis.—S. C. Toof Bldg., occupied in part by James S. Robinson Drug Co.; loss \$25,000.

Tenn., Obion.—Morris Block, occupied by Morris & Morris, J. S. Cox, W. M. Morris and others; loss \$30,000.

Tenn., Paris.—Crawford & Gatlin's store near Jones' mill.

Tenn., Rives.—Rives Grain Co.'s warehouse; loss \$7500.

Tenn., Saulsbury.—Mrs. M. A. Wright's store building.

Tex., Abilene.—A. C. Anderson's residence; loss \$5000.

Tex., Beaumont.—Hubert B. Oxford's residence on Hazel Ave. and 10th St.

Tex., Beaumont.—Gilbert Bldg., owned by John N. Gilbert; loss about \$40,000.

Tex., Dublin.—John Lacy's residence on Grafton St.; loss \$3000.

Tex., Calvert.—J. P. Mercer's building on Main St.; cost \$3900.

Tex., Garland.—H. E. Summers' residence; loss about \$3000.

Tex., Celina.—Residence owned by Mrs. J. W. Willard of Dallas; loss \$3500.

Tex., Cuero.—Buildings of Arthur Monsur, J. O. Dudley, Dr. T. A. Bullard and George Tayone; loss \$10,000 to \$15,000.

Tex., Denton.—McClurkin Block, owned by W. B. McClurkin and occupied by Fox Hardware Co.; Record and Chronicle office, Lone Star Restaurant and others; loss on building \$16,000.

Tex., Floresville.—Isaac Dick's store in Lux Bldg.; loss \$10,000.

Tex., Flynn.—J. M. Reed's store; loss \$7000.

Tex., Hillsboro.—Residences E. Elm St., owned by J. R. Nutt of Magnolia Co. and Mrs. Lella Armstrong; loss \$3000 each.

Tex., Houston.—Bayland Orphans Home in Woodland Heights; loss about \$10,000; Wm. Christian, Prest. of Board.

Tex., Houston.—W. E. Howth's residence at 5003 Oak St., Brunner; loss about \$3500.

Tex., Hubbard.—Mayor W. Q. Bowman's residence.

Tex., Longview.—Dr. A. J. Stewart's residence; loss \$5000 to \$10,000.

Tex., Marshall.—Frank Woods' residence; loss \$6000.

Tex., Mexia.—Frank Pitts' residence in West Mexia.

Tex., Moody.—Buildings of Howard Carnes Mercantile Co., First National Bank, Buckner & Hundley Drug & Jewelry Co., Southwestern Telephone Co., Hay & Clay Grocery Co., Baker & Burt Grocery Co., Cuenod

Racket Store, Lockwood Confectionery Co.; total loss \$125,000.

Tex., Munday.—Jungman Bros.' store; loss \$20,000.

Tex., Royse City.—McAfee Dry Goods Co.'s store.

Tex., Trinity.—G. Clegg's building at Railroad and Main Sts.

Va., Honaker.—Andy Coxe's amusement building; loss several thousand dollars.

Va., Lynchburg.—Maple Grove Bakery, owned by Harry W. Truxell; loss \$1200 to \$1500.

Va., Norfolk.—Building at 733 Church St. and building adjoining, both owned by Barry estate (C. Moran Barry and others).

W. Va., Logan.—Bob Straton's residence in Aracoma; loss \$3000.

W. Va., Omar (not a postoffice).—Store building of Main Island Creek Coal Co., Charleston, W. Va.; loss \$20,000.

W. Va., Wheeling.—Whitaker-Glessner Co.'s machine shops and storeroom; estimated loss \$5000 to \$10,000.

W. Va., Wellsburg.—Wellsburg Glass Products Co.'s plant; estimated loss \$25,000.

BUILDING NEWS

BUILDINGS PROPOSED

APARTMENT-HOUSES

Ala., Birmingham.—E. H. Robinson will erect apartment-house at Fourteenth Ave. and 19th St.; cost \$7500.

Ga., Atlanta.—Mrs. W. A. Dull has plans by Fritz Wagener, 1208 Fourth National Bank Bldg., Atlanta, for apartment-house; 12 three-room suites; brick veneer; tar and gravel roof; steam heat; tiled baths; cost \$20,000; is receiving bids.

Ga., Savannah.—Mrs. M. A. Morrissey will erect apartment-house at 1719 Bull St.; site 56x70 ft.

Md., Baltimore.—Joshua Levering, Merchants-Mechanics' Bank Bldg., is having plans prepared by Edward H. Glidden, 1008 Garrett Bldg., to convert dwelling at 1312 Eutaw Pl. into apartment-house. (Previously noted.)

Mo., Kansas City.—Howard J. Vrooman will erect apartment-house at 10th St. and Lydia Ave.

Mo., St. Louis.—Chapline Construction Co. will erect 1 tenement-houses at 4457-67 McRee Ave.; 3x50 ft.; 2 stories and basement; joist construction; composition roof; furnace heat; granitoid sidewalks; plans and construction by owner. (Lately noted.)

Mo., St. Louis.—E. Brueggerman will erect 2-story tenement-house at 4208 Labadie St.; cost \$3000.

Tex., Beaumont.—O. S. Hunter will erect apartment-house on Liberty Ave. between Forest and Center Sts.; four 4-room suites; 2 stories; cost \$3500; construction under supervision of H. D. Applegate, Beaumont.

Tex., Galveston.—Sam Fridner has plans by T. J. Stephenson, Galveston, for duplex apartment-house; wire lath and plaster construction; each apartment to have 6 rooms and bath; site 28x60 ft.; approximate cost, \$3000.

Tex., Waco.—Ike Levy will erect store and rooming-house. (See Stores.)

Va., Richmond.—East & Hobbs, Norfolk, are reported to erect apartment-house at Monument Ave. and Boulevard; 5 stories; Spanish style; finished in pressed brick and stucco; granite trimmings; open court, 52x68 ft.; porte cochere; elevators; cost, including site, \$175,000; Messrs. East & Hobbs wire Manufacturers Record: "No definite information can be given at present."

Va., Richmond.—Morton G. Thalheimer, First National Bank Bldg., is having plans prepared by Carneal & Johnston, Richmond, for apartment-house at 5th and Grace Sts.; architects wire Manufacturers Record: "Structure 25x150 ft.; 10 stories; steel construction; concrete floors; red and gray brick walls; passenger and freight elevators; cost about \$150,000; plans not yet complete."

ASSOCIATION AND FRATERNAL

Ala., Huntsville.—Edgar L. Love, Huntsville, is preparing plans for building in West Huntsville for Y. M. C. A. and Y. W. C. A.; cost \$30,000.

Tex., Beaumont.—Jessie W. Stewart will erect lodge and business building. (See Stores.)

Tex., Fort Worth.—Masonic Orphans' Home is having plans prepared for school. (See Schools.)

Va., Richmond.—Richmond Lodge No. 45, B. P. O. E., has tentative plans by Carneal & Johnston, Richmond, for building; colonial style; 3 stories, basement and roof garden; red brick; stone trimmings; granite steps to colonial porch 12 ft. wide, extending across front; rathskeller 45x75 ft.; electric lifts; lobby 45x35 ft.; quarry tile floor in poolroom; cost about \$50,000. (Lately noted.)

BANK AND OFFICE

Ark., Heber Springs.—Gribble & Glenn will erect building on Main St. for stores and offices. (See Stores.)

Fla., Jacksonville.—Dyal-Upchurch Investment Co. is reported to rebuild structure at Bay and Main Sts. noted burned at loss of about \$85,000; lower floor for stores; upper floors for offices.

Fla., Valrico.—Valrico Township Co. will construct bank and office building.

Ga., Camilla.—E. L. Whitworth will erect store and office building. (See Stores.)

Okla., Cushing.—Cushing Light & Power Co. will erect business and office building. (See Stores.)

Okla., Enid.—J. B. Ferguson, San Diego, Cal., is reported to erect office building. (See Stores.)

CHURCHES

Ala., Gadsden.—First Methodist Church will erect Sunday-school annex; possibly 2 stories, equipped with gymnasium, swimming pool, etc.; cost \$10,000 to \$15,000; Alton V. Lee, J. E. Blackwood and others, Com.

Ark., Horatio.—Baptist congregation will erect building. Address The Pastor.

Fla., New Augustine.—Methodist Episcopal Church South, Rev. G. W. Herndon, pastor, will erect church and parsonage at Madison and King Sts.; concrete construction.

Ky., Lexington.—Maxwell Street Presbyterian Church will erect building. Address The Pastor.

Md., Cumberland.—Pentecostal Assembly will erect church on Wallace St. Address The Pastor.

Mo., Kirkwood.—Grace Episcopal Church, Rev. J. J. Wilkins, pastor, will repair structure lately burned. (Lately noted to erect structure.)

Mo., St. Louis.—Immanuel Presbyterian Church will erect superstructure on basement already constructed at Penrose St. and Newstead Ave. Address The Pastor.

Mo., St. Louis.—Union Methodist Episcopal Church will expend about \$9000 to improve edifice, including enlarged choir loft, exterior repairs, roofing, spouting, cement walks, windows, enlarged basement, removal of inner wall, wiring and fixtures, etc.; Ed. Christopher, Archt., St. Louis. (Lately noted.)

Mo., St. Louis.—Independent Evangelical Protestant Church is having plans prepared by A. Meyer, 705 Olive St., St. Louis, for building at Fair and Margaretta Aves.; one story and basement; estimated cost \$45,000. (Lately noted.)

Okla., Ringling.—Christian church plans to erect building. Address The Pastor.

Tenn., Murfreesboro.—R. W. Hale is Chrmn. of Building Com. to erect \$50,000 church and parsonage; will also have supervision of estimates, bids, etc.

Tex., Dallas.—Rosemont Christian Church, Rev. J. H. Fuller, pastor, will erect building in Oak Cliff; auditorium to seat 250 to 300; cost \$10,000.

Va., Eastville.—Presbyterian church will erect building; cost not to exceed \$5000; Rev. W. C. Flournoy, Bayview, Va., is interested. (Lately noted.)

Va., Roanoke.—St. James' Methodist Episcopal Church and Melrose Methodist Church will merge and erect building at Melrose Ave. and 13th St.; metal roof; possibly steam heat; cost about \$25,000; construction to begin Apr. 1; Wm. C. Spanangle, 411 4th Ave. N. W., and others, Com.

W. Va., Martinsburg.—Trinity Methodist Episcopal Church South will erect building; cost \$25,000. Address The Pastor.

CITY AND COUNTY

Fla., Jacksonville.—Armory.—Duval County Comms. have preliminary drawings for armory, for which \$150,000 bonds were voted; working drawings to be completed upon sale of bonds, bids for which will be received Jan. 7; Talley & Summer, Archts., St. James Bldg., Jacksonville. (Lately noted.)

Ga., Rome.—Municipal Building and Hospital.—City will vote Feb. 11 on \$100,000 bonds, to include \$75,000 for municipal building, this amount probably to be supplemented by sale of present city hall and No. 1 fire station, and \$25,000 for erection of hospital, county probably to vote on similar amount for same purpose.

La., Harvey.—Storehouse.—Bids received by Wm. Hepting, Secy. of Jefferson Parish Police Jury, Gretna, La., until Jan. 6 to erect storehouse.

Md., Texas.—Almshouse.—County Comms., Towson, Md., will rebuild almshouse reported burned at loss of about \$15,000.

Mo., St. Louis.—Children's Building.—City will expend \$75,000 to erect children's building to replace House of Detention; fireproof. Address The Mayor.

Okla., Drumright.—Jail.—City Comms. plan to erect jail; steel cages encased in stone.

W. Va., Charles Town.—Jail.—Jefferson County Comms. are considering erection of jail.

COURTHOUSES

Okla., Lawton.—Treasury Dept., Oscar Wenderoth, Supervising Archt., Washington, D. C., receives bids until Feb. 6 to erect postoffice and courthouse. (See Government and State.)

S. C., Greenville.—Greenville county votes Jan. 19 on improvements to courthouse at cost not to exceed \$60,000; plans by J. E. Sirrine, Greenville, call for additional story, removing present interior but retaining walls, etc.; Greek Renaissance style; fireproof construction; W. Mills Mooney, Chrmn. County Democratic Executive Com.

DWELLINGS

Ala., Birmingham.—H. A. Passolt has plans by Miller & Martin, Birmingham, for residence.

Ala., Birmingham.—W. G. Tyler will erect residence; 2 stories; brick veneer; day labor; cost \$6000.

D. C., Washington.—Alexander Millar, 1340 New Hampshire Ave. N. W., has plans by James Millar, 3642 New Hampshire Ave. N. W., Washington, for two 2-story brick dwellings at 3821-23 New Hampshire Ave. N. W.; cost \$7500; construction by owner.

D. C., Washington.—Charles Walker has plans by A. E. Landvoigt, 1338 G St. N. W., Washington, for 2-story brick dwellings at 4512-22 15th St. N. W.; cost \$20,000; construction by owner.

Fla., Clearwater.—Sewell Ford has plans by Lester Avery, Clearwater, for dwelling in Harbor Oaks; 3 stories; sunken vestibule leading to brick terrace with pergola.

Fla., Jacksonville.—Alice M. Rainey will erect 2-story frame residence on Redwing St.; cost \$3000.

Fla., Lakeland.—Dr. J. G. Wise has plans by A. J. Poteet, Lakeland, for \$3500 bungalow.

Fla., Pensacola.—Prof. Bennett has plans by Wm. Alfred, P. O. Box 271, Pensacola, for bungalow; frame; vulcanite asphalt shingles; Texas wall plaster; gas fixtures.

Fla., Tampa.—Louis Wohl will erect \$2300 residence.

Fla., Winter Park.—Harley B. Gibbs will erect \$5000 bungalow.

Ga., Columbus.—E. P. Dismukes is reported having plans prepared for residence.

Ga., Washington.—P. D. Baker has plans by Lella Ross Wilburn, Peters Bldg., Atlanta, for dwelling; 2 stories; frame; furnace heat; private plumbing and light plant; cost \$3000; day labor.

La., New Orleans.—Mrs. L. G. LeBeuf has plans by Rathbone E. DeBuys, New Orleans, for residence; 2 stories; frame; hot-air heat; hardwood and tile floors.

La., New Orleans.—Arthur L. Young has plans by Frenherz & Drennan, New Orleans, for 2-story brick-veneer residence.

La., New Orleans.—Michael Bua has plans to erect residence.

Md., Havre de Grace.—J. P. Richards is having plans prepared by Walter M. Gieske, 65 Gunther Bldg., Baltimore, for dwelling; 2½ stories; stone, stucco and frame; tile roof; hot-water heat; electric power plant; cost about \$40,000; plans ready about Feb. 1; bids opened about Feb. 15 and construction probably begun in spring; address architect. (Lately noted to open bids Jan. 1.)

Md., Baltimore.—Antone Schmidt, 2035 E. Lombard St., is reported contemplating erecting dwelling on Kate Ave. near Garrison Ave.; 2 stories.

Md., Catonsville.—Schatz Bros. have plans by John F. Schatz, Catonsville, for dwelling on Osborne Ave.; 40x20 ft.; 2 stories; frame; stucco or shingle finish; slate roof; hot-water heat; electric and gas light; cost about \$4500.

Mo., Kansas City.—Carl F. Gustafson will erect residence at 109 W. 61st St.

N. C., Lexington.—Erlanger Cotton Mills will build 30 operatives' cottages, with water, sewer and electric-lighting facilities.

Okla., Oklahoma City.—L. L. Land will erect 3 dwellings; cost about \$7500.

Okla., Tulsa.—J. S. Cosdon has plans by Henry F. Holt, 315 E. 10th St., Kansas City, Mo., for residence and garage; cost \$35,000.

Tenn., Crossville.—C. G. Black will probably rebuild residence in spring reported burned at loss of \$3000.

Tenn., Murfreesboro.—R. W. Hale is Chrmn. of Building Com. to erect parsonage and \$50,000 church. (See Churches.)

Tex., El Paso.—O. G. Lowery will erect brick bungalow in Highland Park; cost \$3000.

Tex., Fort Worth.—E. G. Rail, Box 324, Fort Worth, will repair residence damaged by fire at loss of \$3000.

Tex., Houston.—N. N. Watkins will erect 8-room dwelling; cost \$5000.

Tex., Houston.—Mrs. F. Carl will erect six-room residence at 1305 Pease St.; cost \$2640.

Tex., Waco.—Mrs. L. Lewine will erect 10-room frame residence; cost \$2900.

Va., Richmond.—J. L. Walthour & Bro. will erect 3 two-story frame dwellings at 1212-16 McDonough St.; cost \$7500.

Va., Richmond.—Miss Elizabeth S. Conn will erect 2-story brick dwelling on Floyd Ave.; cost \$6750.

Va., Richmond.—Mrs. Susie L. Gills will erect 2-story brick store and dwelling at 2401 W. Main St.; cost \$5500.

Va., Roanoke.—Dr. J. T. Strickland will erect residence and business building; cost \$40,000.

GOVERNMENT AND STATE

D. C., Washington.—Federal.—Department of Interior is completing plans for office building in block bounded by E and F, 18th and 19th Sts. N. W.; 6 stories; 400 ft. frontage; tapestry brick; limestone trimmings; has \$2,500,000 appropriation.

La., Gretna.—Postoffice.—Mrs. Snyppe will erect concrete building to be leased to Government for postoffice.

Mo., Kansas City.—Postoffice Sub-Station. C. E. Small and Richard H. Field have plans by Shepard, Farrar & Wiser, Kansas City, for postoffice sub-station on 19th St. between Main and Walnut Sts.; one story and basement; 40x133 ft.; shower baths.

Okla., Lawton.—Postoffice and Courthouse. Treasury Dept., Oscar Wenderoth, Supervising Archt., Washington, D. C., receives bids until March 6 to erect postoffice and courthouse (including mechanical equipment, except elevator and approaches); 3 stories and basement; 6700 sq. ft. ground area; stone and brick facing; tin roof; drawing and specifications obtainable after Jan. 23 from custodian at Lawton, and from Mr. Wenderoth, as above.

Tex., Bryan.—Postoffice.—Treasury Dept., Oscar Wenderoth, Supervising Archt., Washington, D. C., opened bids to erect postoffice; bids received as follows: (a) Limestone with stucco facing; (b) limestone

with brick facing; (c) sandstone with stucco facing; (d) sandstone with brick facing; Geo. A. Shaul, Seneca, Kan., is lowest bidder on a and b at \$41,353 and \$43,373, respectively; T. B. Hubbard, Bryan, lowest bidder on c and d at \$44,081 and \$48,264, respectively; one story and basement; 3600 sq. ft. ground area; non-fireproof except first floor; tin roof. (Lately noted.)

HOSPITALS, SANITARIUMS, ETC.

D. C., Washington.—Depot Quartermaster opened bids to erect corridor to Walter Reed Army and Navy Hospital; 10x23 ft.; ordinary construction; tin roof; \$400 heating plant; \$100 lighting plant; W. E. Mooney, Evans Bldg., Washington, is lowest bidder at \$1159.

Fla., Clearwater.—West Coast Hospital Association has plans by Lester Avery and Sargent Hamilton Co., Clearwater, for hospital building; bids received until Jan. 15; brick or stucco; vacuum-cleaning system; electric signal system; elevators; 72 ft. 8 in. x 45 ft. 3 in.; felt-asphalt roofing. (Lately noted.)

Ga., Rome.—Committee will recommend to City Council election on \$25,000 bonds for hospital. (See City and County.)

La., New Orleans.—Presbyterian Hospital acquired site on Girod St. and is reported to erect building.

Okla., Stillwater.—Chamber of Commerce is promoting erection of hospital; cost \$12,000.

Okla., Durant.—Dr. C. W. Baynham and associates are reported to erect hospital.

Tex., Corsicana.—Navarro county will erect hospital; brick; shingle roof; cost \$10,000; other details not determined; Dr. W. T. Shell, Chrmn. Hospital Board, may be addressed. (Lately noted.)

Tex., Galveston.—J. D. Ward, San Antonio, is reported to erect sanitarium near Nottingham.

HOTELS

Fla., De Funiak Springs.—Mrs. C. B. McKinnon will erect hotel to replace burned structure; frame; metal or tile roof; steam heat; electric lights from city plant; cost about \$12,000. (Lately noted damaged by fire.)

Fla., Deland.—L. J. Cambron and others postponed indefinitely erection of \$40,000 hotel, for which plans were prepared by F. M. Miller, Deland. (Lately detailed.)

Md., Cumberland.—Jos. Reinhart abandoned erection of hotel, for which plans were prepared by A. Bernard Thumel, 3 Water St., Cumberland. (Previously noted.)

Mo., Kansas City.—James A. Wirthman will erect hotel and business block at Locust St. and Whittier Pl.; 3 or 4 stories; foundation to support 5 stories; cost about \$40,000.

Okla., Boynton.—J. A. Watson, Muskogee, Okla., is reported contemplating erection of \$7000 hotel.

Tex., Greenville.—Maj. W. L. Beckham and others are reported to erect hotel to replace Beckham House.

MISCELLANEOUS

D. C., Washington.—Exchange.—Frank Walter will remodel Builders & Manufacturers' Exchange building at 1311-19 H St. N. W.

Md., Baltimore.—Clubhouse.—Gwynn Oak Club, Gwynn Oak Uplands, will probably rebuild clubhouse burned at reported loss of \$6000; Linwood L. Clarke, 215 St. Paul St., owner.

Tenn., Knoxville.—Library.—Lawson McGhee Library Trustees selected Grant C. Miller, 116 S. Michigan Ave., Chicago, as architect for library to be turned over to city, and A. B. Bauman, Knoxville, as assistant architect; 80x100 ft.; ordinary construction; tile roof; steam heat; electric lights; cement sidewalks; cost \$80,000; L. D. Tyson, Chrmn. Building Com. (Previously noted.)

Tenn., Nashville.—Stable.—Berk Building Co. will erect stable at 310 Fourth Ave. S.; cost \$7000.

Tex., Dallas.—Clubhouse.—Dallas Club deferred erection of building. (Previously noted.)

Tex., Dallas.—Grandstand, etc.—J. W. Gardner will expend \$10,000 for construction of ball park, grandstand, etc.

Tex., Houston.—Orphanage.—Bayland Orphans' Home will rebuild structure noted burned at loss of \$10,000; brick; fireproof; Wm. Christian, Prest. of Board.

Va., Richmond.—Stable.—Crystal Ice Co. will not erect stable lately noted, but expend \$1200 for improvements to present structure. (See Ice and Cold Storage.)

RAILWAY STATIONS, SHEDS, ETC.

Ga., Athens.—Georgia R. R., C. A. Wicker-sham, Gen. Mgr., Augusta, Ga., is reported to expend \$150,000 for terminal improvements to include warehouses, wagon tracks, etc.

Ga., Milltown.—Waycross & Western R. R., A. K. Sessoms, Prest. and Gen. Mgr., Waycross, Ga., is reported to erect depot.

La., Rayne.—Louisiana Western R. R. Co. is reported to erect passenger depot. (See La., Sulphur.)

La., Sulphur.—Louisiana Western R. R. Co., E. B. Cushing, Engr. of Construction, Houston, Tex., is reported to erect passenger depots at Sulphur and Rayne.

Md., Arlington.—Western Maryland R. R. will erect passenger and freight station on Garrison Ave.; 30x60 ft.; frame; slate roof; cost about \$10,000; plans by company's engineering department; work by company's force.

Tex., Italy.—Empire Realty Co., Dallas, will erect waiting station and freight depot to replace structure lately noted burned.

SCHOOLS

Fla., Fellsmere.—Fellsmere School Dist. is reported to vote on \$25,000 building bonds. Address Dist. School Trustees.

Ga., Albany.—Albany School Dist. contemplates election on school-building bonds. Address Dist. School Trustees.

Ky., Dawson Springs.—City will erect school building; 8 rooms; ordinary construction; tin roof; steam heat; cost \$15,000 without mechanical equipment; bids opened Feb. 1; construction to begin May 1. Judson Jenkins may be addressed. (Lately noted.)

La., Sulphur.—Calcasieu Parish School Board, Lake Charles, La., deferred erection of barn; A. H. Humphrey, Archt., Room 1 Bloch Bldg., Lake Charles, La. (Previously noted.)

La., Vivian.—Bids received by School Board through Edw. F. Neild, Archt., Shreveport, La., until Jan. 2 to erect school to cost about \$65,000. (Lately noted.)

La., Westlake.—School Board plans to erect school about 1 mi. from Westlake.

N. C., Franklin.—School Trustees will rebuild Cowee High School noted burned.

N. C., Oak Ridge.—Oak Ridge School will probably erect dormitory; brick; accommodations for 75 to 100 students.

S. C., Columbia.—City is considering issuing \$250,000 bonds for schools; \$150,000 for high school, \$100,000 for grammar schools; E. S. Dreher, School Supt.

Tenn., Knoxville.—Knoxville College will repair McMillan Memorial Chapel on Clinton St.; reported damaged by fire at loss of \$3000.

Tex., Brownwood.—City votes Jan. 16 on charter authorizing bond issue for schools, etc. Address The Mayor.

Tex., Clarendon.—Clarendon College will erect boys' dormitory to replace structure lately noted burned; 38x110 ft.; ordinary and face brick; steam heat; electric lights; construction to begin about Feb. 1; construction by salaried superintendent.

Tex., Denton.—City is considering election on \$73,000 bonds for schools as follows: High School, \$50,000; North Side School, including heating and sewerage, \$15,000; improvements to West Side building, including heating plant, etc., \$2000; strengthening R. E. Lee School, \$1000; negro school, \$5000. Address Mayor Foreman. (See Water-works.)

Tex., Fort Worth.—Masonic Orphans' Home is having plans prepared by Hubbell & Greene, Dallas, for school building near Fort Worth; 150x142 ft.; fireproof; tar and gravel roof; steam heat from central power plant; electric lighting; cost about \$65,000.

Tex., Lockney.—School Board, Wm. McGhee, Prest., will rebuild school lately noted burned; probably utilize present foundation, 49x80 ft.; electric wiring; steam heat; auditorium to seat 600 to 800; cost not to exceed \$16,000.

Tex., Marshall.—Wiley University will erect manual-trades building; 40x60 ft.; metal roof; electric lighting; cost about \$2000; bids opened Jan. 15; construction begins about Feb. 1.

Tex., Paris.—City voted \$100,000 school bonds; Ed. H. McCustion, Mayor. (Lately noted.)

Tex., Waxahachie.—City voted on amendment providing for issuance of school bonds. Address The Mayor.

Va., Pulaski.—Pulaski School Dist. voted \$58,000 bonds to erect school, improve structure and equip; Frye & Chesterman, probable architects, Roanoke. (Lately noted.)

W. Va., Warwood.—Richland Dist. of Ohio county votes Jan. 26 on \$50,000 bonds to erect Center Warwood School; brick; fireproof; 8 rooms and auditorium; manual training and domestic science equipment, and Richland Consolidated School on Short Creek in Richland Dist.; Geo. Eberts, Prest., and Harry F. Robinson, Secy. Board of Education of Richland Dist.

STORES

Ala., Birmingham.—Harry B. Wheelock, Birmingham, is preparing tentative plans for rebuilding Steele-Smith Dry Goods Co.'s store. (Lately noted.)

Ala., Birmingham.—S. B. Marks, Montgomery, Ala., will probably erect building for Goldstein Bros. to replace burned structure.

Ark., Pea Ridge.—Fred Stewart will erect business building to be occupied by Stewart & Howe.

Ark., Heber Springs.—Gribble & Glenn will erect building on Main St.; 3 stories; lower floor for stores; upper floor for offices.

Ark., Pea Ridge.—Tetrick & Price will erect business building; 25x60 ft.

Fla., Crystal Springs.—Crystal Springs Mercantile Co. will erect store building; 23x60 ft.; S. C. Singleton, Jr., Archt., Crystal Springs.

Fla., Jacksonville.—Dyal-Upchurch Investment Co. is reported to rebuild burned structures. (See Bank and Office.)

Ga., Camilla.—E. L. Whitworth will erect store and office building to replace burned structure.

Ga., Savannah.—Marcus & Co. are reported to erect structure to replace building lately noted burned; 3 stories; brick.

Ky., Union.—Wm. Rachal will erect store building to replace burned structure; about 30x60 ft.; metal roof; gasoline lighting plant; other details not determined. (See Machinery Wanted.)

Ky., Williamsburg.—J. E. Terry will erect business building on Main St.; 36x100 ft.; ordinary construction; metal roof; steam heat; electric lights; architect or contractor not selected; cost \$5000; begin construction in May or June. (Lately noted.)

Md., Hagerstown.—Max J. Simon will erect 4-story brick business building to replace structure lately noted burned.

Mo., Joplin.—S. S. Kresge Co., Detroit, Mich., is reported to expend \$14,000 to repair building at 506-08 Main St.; construction in charge of Geo. P. Longfellow, Detroit, of company's construction force.

Mo., Kansas City.—James A. Wirthman will erect business block and hotel. (See Hotels.)

N. C., Asheville.—Lowenbein-Rutenberg Co. leased building at 45 Patton Ave. and will make improvements, including new front, flooring, decorations, fixtures, etc.

Okla., Cushing.—Cushing Light & Power Co. will erect business and office building; 3 stories; brick and stone; 50x140 ft.

Okla., Enid.—J. B. Ferguson, San Diego, Cal., is reported to erect brick business building and office building.

Okla., Inola.—A. K. Crichton will erect 2 stone business buildings.

Okla., Oklahoma City.—J. W. Jenkins Sons' Music Co., J. W. Jenkins, Prest., Kansas City, Mo., will rebuild structure reported burned at loss of \$35,000.

Okla., Yale.—Stewart & Wilderson, Archts., 4th floor American National Bank Bldg., Oklahoma City, lets contract Jan. 15 to erect business building.

Tex., Beaumont.—John N. Gilbert will repair Gilbert Bldg. noted burned at loss of \$40,000.

Tex., Beaumont.—Jessie W. Stewart will erect building; 2 stories; brick; lower floor for business purposes; upper floor for lodge rooms for Knights of Columbus.

Tex., Cleburne.—M. R. Pendell, Rockport, Ill., will rebuild structure lately noted burned at loss of \$3000 to \$10,000.

Tex., Dallas.—Roslen & Hynes will erect brick store at 417 N. Central St.; cost \$4000.

Tex., Denton.—W. B. McClurkin will rebuild structure noted burned; probable cost, \$20,000.

Tex., Galveston.—Leopold & Shafer have plans by M. C. Bowden, Galveston, for improvements to building at 2309-11 Ave. D; will provide new entrance, show windows, remodel interior, etc.; cost \$8000.

Tex., Matador.—R. P. Moore will erect stores to replace structure lately noted burned at 12-13 Main St.; 25x100 ft. each; fireproof; tile and gravel roof; electric lights; construction in spring; cost \$4000.

Tex., Waco.—Ike Levy will erect store and

rooming-house; 2 stories; brick; frontage 100 ft.; cost \$10,000.

Va., Norfolk.—Shelby D. Scott will erect 2-story building on Granby St. and remodel building at 317-21 Monticello Ave.

Va., Roanoke.—Dr. J. T. Strickland will erect residence and business building; cost \$40,000; C. H. Hinnant, Archt., Roanoke.

W. Va., Omar (not a postoffice).—Main Island Creek Coal Co., Charleston, W. Va., is reported to rebuild store burned at loss of \$20,000.

THEATERS

D. C., Washington.—Simmons & Cooper, Corcoran Bldg., Washington, are preparing plans for moving-picture theater estimated to cost \$50,000; contract to be let about Feb. 15.

Md., Baltimore.—Gottfried Helmig has plans by Stanislaus Russell, 2900 Clifton Ave., Baltimore, for motion-picture theater at 1801 Presman St.; 40x110 ft.; semi-fireproof; slag roof; hot-water heat; electric light; concrete sidewalks and vault lights; cost about \$8000; bidders are Singer-Pentz Co., 600 Equitable Bldg.; S. A. Katz, 332 S. Caroline St.; Geo. Bunneke & Son, 305 St. Paul St.; Henry Momberger, 34 W. Chase St.; C. C. Watts, 173 W. Hamilton St.; Henry Pierson & Sons, 1000 Olive St.; A. Silberstein, 812 Equitable Bldg.; W. T. Childs, Belle and Garrison Aves.; John R. Jones, 2009 McKean Ave.; R. B. Mason, 306 W. Madison St., all of Baltimore. (Lately noted.)

W. Va., Clarksburg.—Edgar Terneus, R. F. D. No. 3, Box 138, Clarksburg, will rebuild motion-picture theater on 6th St., North View; 30x90 ft.; brick or tiles for stucco; cement, pitch and gravel roof; other details not determined; cost \$3000 to \$4000. (Lately noted burned.)

WAREHOUSES

Ga., Athens.—Georgia R. R., C. A. Wickersham, Gen. Mgr., Augusta, Ga., is reported

to expend \$150,000 for erection of warehouses, etc. (See Railway Stations, Sheds, etc.)

Md., Baltimore.—James J. O'Connor, 427 E. Lexington St., will repair warehouse at 219 S. Charles St. reported damaged by fire.

Md., Baltimore.—Baltimore Gas Appliance Co., Bayard and Hamburg Sts., will erect warehouse at plant; 215x135 feet; brick; slag roof; steam heat; electric light; plans by Engineering Dept. Consolidated Gas, Electric Light & Power Co., Lexington and Liberty Sts. Bidders on addition are: B. F. Bennett Building Co., 123 S. Howard St.; Fidelity Construction Co., 1109 W. Lexington St.; Edward Brady & Son, 1113 Cathedral St.; Morrow Bros., Fidelity Building; G. Walter Tovell, Eutaw and McCulloh Sts.; all of Baltimore; lately noted under Miscellaneous Factories; also having plans prepared by Callis & Callis, 2665 Kennedy Ave., Baltimore, for warehouse at Central Ave. near Baltimore St.; 50x80 ft.; 2 stories and basement; brick and frame; slag roof; steam heat; electric lights; cost about \$15,000.

N. C., Whiteville.—Whiteville Commercial Club is reported promoting erection of tobacco warehouse.

Okla., Tulsa.—Nichols Wire Co., Kansas City, Mo., is reported to erect warehouse; 100x140 ft.; cost \$5000; P. E. Hudson, local manager.

S. C., Pineville.—Dubose Cotton Warehouse Co. inctd. with T. S. DuBose, Prest. and Gen. Mgr.

Tenn., Rives.—Rives Grain Co., W. L. Clemmons, Prest., will rebuild warehouse reported burned at loss of \$7500.

Tex., Hebron.—Hebron Warehouse Co. inctd. by J. H. Morgan, W. C. Furneaux and R. M. Everett.

Tex., Orange.—Orange Commercial Club is promoting erection of warehouse; probably sheet iron; 100x150 ft.; R. Bradbury, C. Aronson and F. W. Hustmyre, Com.

BUILDING CONTRACTS AWARDED

APARTMENT-HOUSES

Ga., Atlanta.—Lovick G. Neal let contract to J. W. Chase, Atlanta, to erect apartment-house at North Ave. and Myrtle St.; 44x114 ft.; ordinary brick-vener construction; slate roof; cost of heating plant \$1600; total cost \$20,000; DeFord Smith, Archt., Atlanta. (Lately noted.)

Mo., St. Louis.—H. Brokhaus let contract to H. Beetz, St. Louis, to erect 2-story tenement-house at 3501-3503 Louisiana St.; cost \$5500.

Tex., Galveston.—Model Laundry Co. let contract to erect addition for apartments, etc. (See Miscellaneous.)

Va., Norfolk.—R. Randolph Hicks let contract to alter building for stores and apartments. (See Stores.)

BANK AND OFFICE

Ala., Piedmont.—Bank organized with C. N. Thompson, Prest., is reported to have let contract to John F. and Lloyd Morgan to erect bank building; 2 stories; brick; 22x54 ft.

Fla., Bartow.—T. A. Goode let contract to J. J. Johnson, Bartow, to erect 1-story brick building on Main St.

Mo., St. Louis.—American Tar Products Co., Chicago, let contract to M. C. Bartels, 4224 Bingham Ave., St. Louis, to erect office building at 3900 Taft Ave.; 23x35 ft.; ordinary brick construction; 13-in. walls; asbestos slate roof; steam heat; cost \$2400; plans by owner.

Tex., Gatesville.—Burt Construction Co., Gatesville, has contract to erect store and office building. (See Stores.)

W. Va., Martinsburg.—O. M. Ramsey & Co. let contract to erect store and office building. (See Stores.)

CITY AND COUNTY

Fla., Lake Worth.—Town Hall.—Town let contract to G. G. Mather, Lake Worth, to erect building; lower floor for fire department; upper floor for town hall; 18 ft. 4 in. by 51 ft.; 2 stories; fireproof; concrete and patent roofing; cost \$3700; G. S. Childs, Archt., Lake Worth, Fla. (Lately noted.)

DWELLINGS

Ala., Birmingham.—James Hillhouse let contract to William & Darling, Birmingham, to erect 4 one-story frame residences; cost \$3200.

Ala., Foley.—W. Koehle let contract to

S. C., Georgetown.—W. H. Yawkey, New York, let contract to T. W. Brightman, Georgetown, to erect 13-room bungalow.

GOVERNMENT AND STATE

Tenn., Jellico.—Postoffice.—Treasury Dept., Oscar Wenderoth, Supervising Archt., Washington, D. C., let contract at \$63,181 to Wm. H. Fissell & Co., 1133 Broadway, New York, to erect postoffice; 2 stories and basement; 4000 sq. ft. ground area; fireproof; brick and stone construction; composition roof; semi-indirect steam heating plant to cost approximately \$2500; light plant about \$900; cement sidewalks \$600; construction to begin Jan. 15; general contractors will receive sub-bids, which will approximate \$25,000. (Previously noted.)

HOSPITALS, SANITARIUMS, ETC.

Ga., Columbus.—William Wilson, Realty Trust Bldg., Atlanta, has contract for painting City Hospital, for which general contract was let to Southern Ferro-Concrete Co., Trust Co. of Georgia Bldg., Atlanta; total cost \$60,000. (Lately noted.)

N. C., Asheville.—Asheville Mission Hospital let contracts to erect east wing to hospital as follows: General contract, Longest & Tessler, Greensboro, N. C.; plumbing, Sluder Bros.; electrical work, W. A. Ward; both of Asheville, N. C.; plans by W. H. Lord, Asheville, call for brick walls, reinforced concrete slab walls; gypsum block partitions; concrete foundation; cost about \$50,000. (Lately noted.)

HOTELS

Fla., Raiford.—D. C. Cason let contract to J. S. McCormick, Raiford, to erect frame hotel building; 14 rooms; 4416 ft. floor space; shingle roof; contractor may be addressed.

MISCELLANEOUS

Mo., St. Louis.—Stable, etc.—Columbia Transfer Co. let contract to erect transfer depot and stable. (See Warehouses.)

Tex., Galveston.—Stable, etc.—Model Laundry Co. let contract at \$12,499 to Eubank & Dibrell, Galveston, to erect addition to building; 2 stories; 120x40 ft.; fireproof; foundation to support 4 or 5 additional stories; lower floor for garage, stables, storeroom for supplies; upper floor 3 four-room apartments and 5 single rooms for employees of plant; will install incinerator between main structure and addition; L. S. Green, Archt., Galveston.

Tex., Waco.—Undertaking Establishment.—E. W. Marshall and J. H. Riley let contract to H. A. Bruyere, 17th St. and West Ave., Waco, to erect undertaking establishment at Franklin Ave. and 7th St.; 40 ft. 9 in. by 32 ft. 6 in.; ordinary construction; tar and gravel roof; electric lights; cost \$8500; hand-power elevator, \$200; Ross & Cason, Archts., 1509 Amicable Bldg., Waco. Address contractor. (Lately noted.)

SCHOOLS

Ga., Donaldsonville.—School Board let contract to A. C. Knight, Albany, to erect school; P. E. Dennis, Archt., Macon. (Lately noted.)

Miss., Olive Branch.—De Soto County Commissioners let contract to J. E. Birmingham of Olive Branch Lumber Co., Olive Branch, to erect 2-story brick dormitory for De Soto County Agricultural High School; steam heat; electric lights; domestic science equipment; cost \$10,000.

Mo., St. Louis.—St. Aloysius parish let contract to Chas. W. Schuler, St. Louis, to erect 2-story school; cost \$16,000.

Tenn., Knoxville.—Knox County Board of Education let contract at \$15,377 to erect high and grammar school in Thorne Grove; 12 rooms; brick veneer.

Tenn., Knoxville.—Knoxville County Commissioners let contract at \$12,500 to J. J. Gillenwater, Knoxville, to erect agricultural high school at Carter's, and at \$2377 to J. T. Weathered, Knoxville, for plumbing and heating; 2 stories; brick veneer; slate roof. (Lately noted.)

STORES

Ala., Bessemer.—S. H. Kress & Co., 350 Broadway, New York, let contract to R. V. Labarre General Construction Co., Bessemer, to erect building on Second Ave. between 19th and 20th Sts.; 2 stories; 25x140 ft.; approximate cost \$20,000.

Ark., Foreman.—Dr. W. L. Shirley let contract to J. W. Miller, Texarkana, Ark., to erect brick business building to replace structure previously noted burned.

Ark., Glenwood.—Watkins & Co. have plans by and let contract to M. C. Morris,

Amity, Ark., to erect business building; 44x80 ft.; brick and concrete; pitch and gravel roof; electric lights; concrete sidewalks; construction to begin Feb. 15; cost \$5000. (Lately noted.)

Ga., Griffin.—S. W. Goldstein has plans by and let contract to James M. Brisendim, Griffin, to erect store building; 28x90 ft.; tin roof; heating undecided; light from ordinary circuit; cost \$5000.

Ga., Lagrange.—Mrs. J. E. Lane, Lagrange, and Mrs. Harvey Hill, Atlanta, let contract to H. W. Caldwell, Lagrange, to rebuild structure previously noted burned; plate-glass show windows, steel ceiling, flooring and plastering, etc.

Mo., St. Louis.—Daisy Investment Co. let contract to erect theater and store building. (See Theaters.)

Mo., St. Louis.—Edw. Mallinkrodt let contract to A. Haessler Building & Contracting Co., St. Louis, to alter building at 901-907 Washington St.; cost \$3000.

Okla., Aline.—Chas. Moore let contract to Thomas & Mincher to erect business building; 20x36 ft.

Tex., Brownsville.—Mrs. Frank R. Armstrong let contract to Joe Colunga, Brownsville, to erect 1-story brick business building.

Tex., Gatesville.—Burt Construction Co., Gatesville, has contract to erect lately noted store and office building on Main St.; 50x100 ft.; 2 stories; metal ceiling; 2 skylights; all contracts to be sublet, including wiring, plumbing, plastering and roof; cost \$10,000; H. D. Pampel, Archt., Temple, Tex. (See Machinery Wanted.)

Va., Norfolk.—K. Randolph Hicks let contract through Mitchell & Wilcox, Architects, Norfolk, at \$3734 to W. I. McCoy & Co., Norfolk, to alter building at Charlotte and Brewer Sts.; 3 stories; lower floor for 3 stores; upper floor for apartments. (Lately noted.)

Va., Portsmouth.—E. W. Maupin, Jr., is reported to have let contract to C. E. Duannant Contracting Co., Inc., Portsmouth, to alter building at Middle and High Sts.; 40x60 ft.; ordinary construction; gravel roof; electric lighting; cost \$3000; C. M. Major, Archt., Old Kirm Bldg., Portsmouth. (Lately noted.)

W. Va., Martinsburg.—O. M. Ramsey & Co. let contract to Frank O. Trump, Kearneyville, W. Va., to erect building on S. Queen St.; 3 stories and basement; 34x150 ft.; ordinary construction; 4-ply slag roofing; low-pressure steam heat to cost \$1500; electric wiring and fixtures to cost \$1000; one hand-power freight elevator at present; concrete, brick and steel; 31 ft. 2 in. by 150 ft.; concrete basement; first floor for store, with plate-glass front; second floor for 21 offices; third floor plastered, but not finished; C. C. Compton, Archt., Donora, Pa.; owners may be addressed. (Lately noted.)

THEATERS

Fla., West Palm Beach.—Empire Amusement Co., Edgar W. Ruff, V.-P. and Gen. Mgr., let contract to Frank Foster, West Palm Beach, to erect motion-picture theater; 50x75 ft.; concrete block; Atlas white cement finish.

Mo., St. Louis.—Daisy Investment Co. let contract to F. J. Cornwell, 810 Chestnut St., St. Louis, to erect Mutoscope Theater at 3037-39 Olive St.; fireproof; stucco; 52x140 ft.; concrete roof; steam heat; seating capacity 800; 2 stores on either side of entrance; cost \$15,000.

Tex., Texas City.—J. R. Campbell let contract to Southwest General Construction Co. to erect theater on 6th St.

WAREHOUSES

La., New Orleans.—McClintic-Marshall Construction Co., Pittsburgh, Pa., is reported to have contract for 1600 tons of structural shapes and reinforcing bars for cotton warehouses, for which Jefferson Construction Co., New Orleans, has general contract at \$994,646; Ford, Bacon & Davis, Engrs., 921 Canal St., New Orleans. (Lately detailed.)

Mo., St. Louis.—Columbia Transfer Co. has plans by Frederick Bonsack, St. Louis, and let contract to Chas. B. McCormack & Son, St. Louis, to erect transfer depot at 12th and Spruce Sts.; steel frame and reinforced concrete; floors, beams, etc., reinforced concrete faced with brick; terra-cotta trimmings; 160x155 ft.; fireproof; gravel roof; steam heat; loading platform 12 ft. wide; covered with ornamental iron and glass canopy; storage space on ground floor 152x100 ft.; center alley 60 ft. wide, spanned with heavy steel girders; remainder of ground floor occupied by wagon, paint, horseshoe shops, steam heating plant and toilets; incline 10

ft. wide, leading to horse stalls on second floor to accommodate 200; shower baths; 100 lockers; iron and steel windows of Fenestra type; glazed with wireglass; concealed ventilating fan system; cost \$80,000. (Previously noted under Railway Stations, Sheds, etc.)

N. C., Salisbury.—Kessler Mfg. Co. let con-

tract to Holbrooks & Bradshaw, Salisbury, to erect 2 additional storage warehouses; standard construction; 15,200 sq. ft. additional floor space.

Tex., Galveston.—Model Laundry Co. let contract to erect addition for storeroom, etc. (See Miscellaneous.)

RAILROAD CONSTRUCTION

RAILWAYS

Ala., Birmingham.—Concerning recent report that the Pratt Consolidated Coal Co. may build a railroad from mines to the Warrior River, the company says that this will be only a tramroad of 42-in. gauge, with 40-lb. rails. It will be a mile long.

Ark., Calico Rock.—Arkansas Mining & Development Co. is expected to let contract soon for construction of contemplated electric railroad from Hoxie to Calico Rock, about 75 mi., via Portia, Black Rock, Denton, Smithville, Nelsonville, Poughkeepsie, Evening Shade, Zion, Lacrosse, Melbourne and Newburgh. Branch proposed from Nelsonville to Shelbyville, Cave City and Batesville, Ark., about 60 mi. J. W. Myers, present address Nashville, Ark., may give information.

Ark., Warren.—Warren, Johnsville & Saline River R. R. Co. is building for the Bradley Lumber Co. a 5-mi. log line from Johnsville toward Peters Lake. C. W. Holderbaum is Supt. and Ch. Engr. at Warren.

Fla., Jacksonville.—Atlantic Harbor R. R. Co. gives notice of intention to apply for charter to build a railroad with a total of 30 mi. of tracks in this (Duval) county from Ft. George Island and St. Johns River to and across Sister Creek and thence westerly to a point at or near Plummer, Fla., which is on the Georgia Southern & Florida Ry.; capital \$50,000; authorized total indebtedness \$5,000,000; incorporators, Alfred H. Broderick, 102 Congress St., and Gardner Washburn, 50 Congress St., both of Boston, Mass.; Ernest G. Phinney, J. Miller Wilson, R. G. Ross, P. D. Cassidy and Francis B. McGarry of Jacksonville; W. M. Wright of St. Augustine, Fla., and George J. Percival of Atlantic City, N. J. Mr. Percival is Pres.; Mr. McGarry, V.-P.; Mr. Wright, Secy., and Mr. Cassidy, Treas. W. H. V. Williams is named as the chief promoter of the plan, and Ellis, Curtis & Kooker of Jacksonville are the engineers.

Fla., Pensacola.—Pensacola, Mobile & New Orleans R. R. Co. is building an extension with its own forces from Pomona to Mobile, Ala., 25 mi. E. McLaughlin, Pensacola, is Gen. Mgr.

Ga., Millen.—A. S. Anderson, attorney-at-law, Millen, says right of way is secured for railroad about 6 mi. long; also sufficient capital for construction.

Ky., Paducah.—Contract for building the double track on the Paducah & Illinois R. R., 12 mi. long from Paducah to the Ohio River opposite Metropolis, Ill., is reported let to Morse, Shepard & Dougherty of St. Paul, Minn., who have the grading contract, on which construction has been in progress for some time. Chas. Broadbeck, Paducah, is Ch. Engr.

La., Monroe.—Monroe & Texas R. R. Co. is reported chartered with \$40,000 capital, which may be increased to \$200,000, to build a line through Ouachita, Jackson, Winn, Natchitoches and Sabine parishes to the Sabine River, about 115 mi. Branches permitted and water transportation may be conducted. F. R. Pierce is Pres.; L. Brandt, V.-P.; C. L. Chesboro, Secy., and A. B. Pierce, Treas. The board of directors includes the officers and W. B. Ayars, J. A. Dewes and R. L. Curtis.

Mo., St. Louis.—The receivers of the Frisco System, it is reported, contemplate spending \$1,000,000 on its Southern lines for improving grades and alignment, betterments to bridges, etc. Jas. W. Lusk, W. C. Nixon and W. B. Biddle, St. Louis, are receivers.

Mo., St. Louis.—Springfield & Central Illinois Traction Co., organized by St. Louis men, proposes electric interurban railway from St. Louis to Terre Haute, Ind., about 185 mi., but will begin operation as soon as 25 mi. between St. Louis and Newton, Ill., is completed. Capitalization, \$20,000,000 common stock and \$20,000,000 of bonds authorized. Financing arrangements in progress. Isaac A. Smith, 952 Catalpa St., is Pres.; George W. White, V.-P.; A. C. Skillman, Secy., and N. E. McMillan, Treas. Right of way obtained.

Okla., Bartlesville.—T. T. Blakely, Secy. Chamber of Commerce, says definite plans are not yet made for proposed railroad

from Bartlesville to Pawhuska, Okla., about 25 mi.

Okla., Nowata.—Union Traction Co. of Coffeyville, Kans., will, it is reported, make some extensions from Nowata as soon as its line here is completed. D. H. Higgins is Pres. and Gen. Mgr.

Okla., Tulsa.—Farmers' Street Car Association of Lincoln, Neb., is reported contemplating construction of an interurban railway from Nowata via Centralia to Vinita, Okla., about 33 mi. W. M. Henry is investigating the route.

Tenn., Greenville.—Carolina, Greenville & Northern R. R. Co. proposes to construct a "standard interurban type trolley" railway about 75 mi. long between Newport and Kingsport, Tenn., via Greenville, including 2 bridges, 1 over Holston, the other over French Broad River. Route through rolling country. Bids for construction probably opened May 1. Directors are H. S. Reed, Pres., 205 Grant Bldg., Los Angeles, Cal.; James L. Callanan, V.-P., 111 Broadway; Kirby Thomas, Gen. Mgr., 43 Exchange Pl., both of New York; Frank K. Emmett, G. A. Blauvelt and Francis McIntyre, all of New York, and Rankin Johnson, Trenton, N. J. E. R. Eaton, Greenville, is Treas.; A. M. Blauvelt, Secy., 61 Broadway, New York, and F. A. H. Kelly, the latter of Greenville, chief engineer.

Tenn., Knoxville.—Mrs. Mark K. Bell of Knoxville is reported representing Eastern capitalists and will apply for right of way to build an interurban electric railway from Knoxville to Bristol and Newport, Tenn., about 120 mi. S. E. Hodges of Knoxville is attorney. He says he has secured right of way through some counties.

Tex., Houston.—Sunset Central Lines are relaying with 90-lb. rails 20 mi. between Missouri City and a point near Rosenberg, Tex., and contemplate also relaying the following

with the same weight of rails by June 30: Lockmoor to Lake Charles, La., 20 mi.; Corsicana and Ennis, Tex., 12 mi.; Ferris and Dallas, Tex., 2 mi.; Schulenberg and Eagle Lake, Tex., 16 mi.; Comstock and Sierra Blanca, Tex., 26 mi. W. B. Scott, Houston, is Pres.

Tex., Houston.—Referring to recent rumor that International & Great Northern Ry. contemplated considerable improvement work, James A. Baker and Cecil A. Lyon, receivers, Houston, say: "Nothing to report."

W. Va., Parkersburg.—Marietta-Parkersburg Interurban Co. has applied for charter to build a trolley railroad from Parkersburg to Marietta, O., about 10 mi., on the western bank of the Ohio River. Capital \$10,000. Incorporators, John Kaiser, E. Clark, Jr., and M. M. Rose of Marietta, and H. H. Archer and Kenner B. Stephenson of Parkersburg. C. C. Middleswart of Marietta is Atty.

W. Va., Williamson.—Norfolk & Western Ry. reported grading on Pinnacle Creek, in this (Mingo) county, for a line from Wide-mouth, on the main line, through Clark's Gap down the creek to Guyandotte River to Gilberts Creek, Ben Creek and again to the main line at Wharnciffe. J. E. Crawford, Roanoke, Va., is Ch. Engr.

STREET RAILWAYS

D. C., Washington.—Washington Ry. & Electric Co. has petitioned the Public Utilities Commission for authority to issue \$664,000 of 6 per cent. bonds, partly to pay for improvements already made and also for future work. Extensions, etc., immediately in prospect amount to \$200,000. C. P. King is Pres.

N. C., Newbern.—Newbern-Ghent Street Railway, according to local report, will extend ¼ mi. to the Union Station. Fritz Sittler, Richmond, Va., is Pres.

Tex., Dallas.—Dallas Consolidated Electric Co. has completed extension to Southern Methodist University, 1½ mi., and will begin operation immediately.

Va., Newport News.—Ordinance is signed covering an agreement between the city and the Newport News & Hampton Ry., Gas & Electric Co., for construction of railway extension down Jefferson Ave. to municipal small boat harbor.

MACHINERY, PROPOSALS AND SUPPLIES WANTED

Manufacturers and others in need of machinery or supplies of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery or supplies needed we will make their wants known free of cost, and in this way secure the attention of manufacturers and dealers throughout the country. The Manufacturers Record has received during the week the following particulars as to machinery and supplies wanted.

"WANTS"

Agricultural Implements.—See Woodworking Machinery, etc., Capletti Lino.

Air Compressor.—Hughes Specialty Well Drilling Co., 96 Ashley Ave., Charleston, S. C.—Correspondence with manufacturers of rotary air compressor.

Air Compressor.—Jacobs Auto Co., Shelbyville, Tenn.—Air compressor for garage.

Air Washer.—Bureau of Engraving and printing, Office of Purchasing Clerk, Washington, D. C.—Bids until Jan. 7 to install air washer; for further information address Purchasing Clerk.

Aluminum Manufacturers.—Miss S. B. Willis, Richmond, Va., Route 9.—Addresses of aluminum goods makers who manufacture on royalty basis.

Beltting.—See Woodworking Machinery, etc., Capletti Lino.

Boiler.—Oklahoma Refining Co., Oklahoma City, Okla.—Good second-hand 125 H. P. horizontal boiler, 16x72, with 4-in. flues.

Brass Material, etc.—J. B. Ammons, Washington, D. C., general delivery.—Small brass material, telephone wire, dynamite or powder fuse, small springs and small glass bulbs; some of these to be manufactured to order; also wax manufactured to order.

Bricks.—Hillside Cotton Mills, Fuller E. Callaway, Treas., LaGrange, Ga.—Proposals to furnish between 2,000,000 and 3,000,000 bricks, ¾ hard and ¾ average, for constructing cotton mill buildings; invites cash prices, samples, etc. Company is capitalized at \$500,000.

Bridge Construction, etc.—State Roads Com., Wm. L. Marcy, Secy., 601 Gar-

rett Bldg., Baltimore, Md.—Bids until Jan. 19 to construct reinforced concrete bridge; 16 30-ft. and one 32-ft. spans, girder construction; one reinforced concrete bridge, 7 15-ft. spans, girder construction, across main branch of Patuxent River between Baltimore and Anne Arundel counties; also for about 1.5 mi. sheet asphalt paving for Hanover St. bridge and approaches; contract No. Bc-17, section 6, Baltimore city; specifications and plans furnished by Com. on application and payment of \$1.

Bridge Construction.—Wharton County Comrs., W. G. Davis, County Judge, Wharton, Tex.—Bids until Jan. 11 to repair bridge over Colorado River; plans and specifications on file with John A. Norris, County Surveyor; W. G. Davis, County Judge.

Buhr Mills.—J. E. Crosier, Waiteville, W. Va.—Prices on French buhrs.

Building Material.—Wm. Rachal, Union, Ky.—Prices on brick for building, about 30x60 ft., material for concrete foundation and sidewalk and metal for roofing.

Building Materials.—Hillside Cotton Mills, Fuller E. Callaway, Treas., LaGrange, Ga.—Large quantities of brick, lumber, concrete material and other building supplies for constructing cotton mill buildings; invites cash prices, samples, etc. Company is capitalized at \$500,000.

Burners (Refuse).—Big Salkehatchie Compress Co., E. C. Glenn, Gen. Mgr., Varnville, S. C.—Bids and specifications on either water-jacketed refuse burner or brick-lined straight burner, about 15 ft. inside diam. and 80 ft. high; Cypress company to erect the burner.

Cable (Electric and Steel).—See Cast-iron Lamp Posts, etc., Panama Canal.

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Cast-Iron Lamp Posts, etc.—Panama Canal, F. C. Boggs, Gen. Purchasing Officer, Washington, D. C.—Bids until Jan. 21 to furnish cast-iron lamp posts and porcelain receptacles and lamp sockets for same, electric cable, steel cable, steel pipe and pontons for same, cast-iron washers, stove-pipe, garbage cans, buckets, anchors, brass bolts and washers, door bolts, power back saw, anchor lights, cheesecloth, sash cord, chalk line, twine, rubber bands, bristol board, pad board, manganese dioxide and potassium chlorate; blanks and general information relating to this circular (No. 88) may be obtained from this office or offices of assistant purchasing agents, 24 State St., New York; 611 Whitney-Central Bldg., New Orleans, and 1086 North Point St., San Francisco; also from U. S. Engr. offices in Seattle, Los Angeles, Baltimore, Philadelphia, Pittsburgh, Boston, Buffalo, Cleveland, Cincinnati, Chicago, St. Louis, Detroit, Milwaukee, St. Paul, Chattanooga, Louisville, Mobile and Galveston; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash.

Cement Machinery.—See Leather-working Machinery, etc., Benson Bros.

Cement.—Burt Construction Co., Gatesville, Tex.—Prices on acme cement.

Cement, etc.—Leon Lopez, Lamparilla 21, Havana, Cuba.—Interested, view to representation, in following: Cements, lubricating oils, heavy iron goods, hardware, paper and paper bags, etc.

Cement, etc.—Hillyer & Sperring Co. (contractor for \$120,000 reinforced concrete viaduct), Jacksonville, Fla.—Cement, crushed stone, concrete chutes and steel rods.

Cement Curbing and Guttering.—City of Tuskegee, Ala., E. M. Thompson, Mayor.—Open bids Jan. 14 to construct about 10,000 ft. cement curb and gutters; Engr., Tuscaloosa Concrete & Construction Co., Tuscaloosa, Ala.

Chain (Conveyor).—Gatlin & Dowling, Williston, Fla.—Will purchase 600 ft. 3/4x5 slab conveyor chain.

Chair Machinery.—J. E. Crosier, Waiteville, W. Va.—Prices on small set chair machinery.

Chutes (Concrete).—Hillyer & Sperring Co., Jacksonville, Fla.—Concrete chutes. (See Cement, etc.)

Clothing.—See Convict Cages, etc., Levy County Commrs., Bronson, Fla.

Concrete.—See Building Material.

Concrete Mixers.—Eastern Railway Supply Co., 1101 American Bldg., Baltimore, Md.—2 1/2-yd. second-hand concrete mixers.

Concrete Materials.—See Building Materials.

Convict Cages, etc.—Levy County Commissioners, A. P. Hardee, Clerk, Bronson, Fla.—In session Jan. 4 and 5; will consider purchasing "Cages, clothing and necessities for safekeeping, feeding and working" county prisoners on public roads.

Copper Wire.—See Lathes, etc., Navy Dept.

Corn Mills.—Chas. W. Lancaster, Alamo, Ga.—Cornmeal mill; also gasoline or oil engine for mill.

Cotton Gin Machinery.—Claud Taylor, R. F. D. 6, Greenville, Ala.—Prices on cotton gin machinery, 20 bales daily capacity.

Cotton Gin, etc.—Conroe Gin, Ice & Light Co., J. McDade, Prest., Conroe, Tex.—Prices on complete equipment (turn-key job) cotton gin, ice and electric plant to be rebuilt.

Cove Base.—See Flooring, etc., L. W. Dumas, Jr., Construction Co.

Crushing (Rock) Machinery, etc.—Geo. M. Crider, care Crider & Woods, Marion, Ky.—Addresses of manufacturers of machinery to crush limestone rock and to spread after crushing.

Dam Construction.—U. S. Engr. Office, H. Jervy, Lieut.-Col. Engrs., Cincinnati, O. Bids until Jan. 26 to construct lock and dam No. 33, Ohio River, near Maysville. Information on application.

Drainage System.—Supvrs. Fabius River Drainage Dist., J. H. Best, Secy., Illinois State Bank, Quincy, Ill.—Bids until Jan. 20 to construct levees, ditches and diversion channels; about 2,000,000 cu. yds. ditch and channel excavation and levee fill; work to be divided into 7 principal sections and 4 small sections, each suitable for contract unit; for further information address Harman Engineering Co., 144 Fredonia Ave., Peoria, Ill.; Jacob A. Harman, Chief Engr., Peoria, Ill.

Drainage System.—Drainage Commrs., Jackson County Drainage Dist. No. 4, Fred Spencer, Chrmn., Edna, Tex.—Bids until

Jan. 12 to construct canals, drains, ditches and levees, straightening and cleaning water courses, etc.; work consists principally of about 100 mi. of ditches, yardage about 382,343; area of district, 20,000 acres; information obtainable from S. K. Chalk, Dist. Engr., Box 592, San Antonio; J. W. Bagby, County Judge, Edna, or from above Commissioners; Engr.'s complete reports on file in County Clerk's office.

Dredging.—Baltimore (Md.) Board of Awards.—Bids at office City Register until Jan. 13 for dredging; for specifications apply at office Harbor Board, O. F. Lackey, Harbor Engr.

Dredging.—Board of Awards, John Hubert, Acting Prest., Baltimore, Md.—Bids at City Register's Office, City Hall, until Jan. 20 to dredge main channel north from Lazaretto Light to piers of transatlantic liners; about 2,000,000 cu. yds. dredging; plans and specifications obtainable at office of O. F. Lackey, Harbor Engr.

Drills (Radial).—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Feb. 2 on three radial drills, schedule 777, delivery Puget Sound, Wash.; schedule on application.

Drugs, etc.—Interstate Doctors, Conellsville, Pa.—Catalogues and prices on drugs, chemicals, laboratory and office equipment.

Drying (Cow Peas) Machinery.—Huntsville Cotton Oil Co., Huntsville, Tex.—Addresses of manufacturers of machine for kilndrying cow peas.

Excelsior Machinery, etc.—Jas. T. Brasington, care Rocky River Springs, Aquadale, N. C.—Data on establishment of plant to manufacture excelsior or other (small) products of woodworking plants; has hardwood and pine; wants data on manufacture and markets, prices on machinery, etc.

Flour Mill.—H. Z. Ricard, Edmund, S. C.—Roller flour mill, 30 bbls. capacity, to be operated by water-power.

Flour Mill Machinery.—Wm. R. Timmons, Secy., Chamber of Commerce, Rock Hill, S. C.—Prices on following machinery for 50-bbl. flour mill: Milling separator (counterbalanced), 25 or 40 bus. capacity; double scourer (without shoe), 20 bus. capacity; 4 double 7x16 roller mills (3 pr. cor. and 5 pr. smooth); 8-section sifter, 60 bbls. capacity; centrifugal reel (26 to 28 grain, not less than 7 ft. long); middlings purifier (shaker not less than 24x7 ft.); bran duster, 100 bbls. capacity; tubular dust catcher for purifier; one No. 6 and one No. 5 cyclone dust catchers; flour packer, 3 tubes (12-24-18); 12 elevator heads; 12 elevator boots; 20 ft. 2-7-16 shafting; 20 ft. 1-15-16 shafting; 24 elevator pulleys, 14x1; 4 30x5-in. pulleys; corn cleaner, capacity 60 bus. per hour; power sheller, 60 bus. per hour capacity.

Flooring, etc.—J. W. Dumas, Jr., Construction Co. (general contractor for Ray County Courthouse), 414 Guitard Bldg., Columbia, Mo.—Quotations on about 15,000 sq. ft. composition flooring and 2500 lin. ft. 6-in. cove base; open specification, but subject to approval of R. W. Roberts, Archt., Chillicothe, Mo.

Ice Machinery.—See Cotton Gin, etc., Conroe Gin, Ice & Light Co.

Iron.—Capitelli Lino, San Paulo, Brazil.—Prices on iron (feratul); view to representation.

Iron and Steel.—Hugh Girvan, 129 Cannon St., London, E. C., Eng.—Prices (view to representation) on billets, sheet bars, wire rods, wire, wire nails, bars, plates, beams, channels, angles, tees, floor plates, bedstead angles, light rails, black and galvanized sheets, cold-rolled steel bars and strips, bolts, nuts, spikes, rivets.

Lamps.—F. Sternberg, 216 8th Ave. S., Nashville, Tenn.—Addresses of manufacturers of kerosene mantle lamps and of acetylene lamps used with carbide.

Lathes (Buffing).—See Pipe-cutting Machines, etc., Navy Dept.

Lathe.—Battley Machinery Co., Rome, Ga. Second-hand engine lathe; 16 to 20 in., 10 to 14 ft. bed, with usual attachments.

Levee Construction.—River and Canal Com., Nisbet Wingfield, Chief Engr., 747 Broad St., Augusta, Ga.—Bids addressed to City Council received at office River and Canal Com. until Jan. 19 to construct section No. 4 of earth levee, requiring 250,000 cu. yds. earth fill and 30,000 cu. yds. excavation; scraper or wagon work; also at same time to construct 360 lin. ft. reinforced concrete box sewer, 7x1 1/2 ft.; 420 lin. ft. 48-in. brick sewer; 530 lin. ft. 42-in. brick sewer; 760 lin. ft. 36-in. brick sewer; 330 lin. ft. 24-in. pipe sewer; plans and specifications obtainable from Chief Engr.

Leather-working Machinery, etc.—Benson Bros., 51 Druitt St., Sydney, N. S. W., Australia.—Correspondence with manufacturers of machinery for working leather, rubber, paper, cement, etc.; view to machinery representation.

Limestone.—A. G. Delmas Sons, Pascagoula, Miss.—Addresses of manufacturers of limestone (in vicinity of Alabama, Tennessee or Kentucky preferred.)

Locomotive.—A. S. Anderson, Millen, Ga.—Locomotive. (See Rails, etc.)

Lubricants.—See Woodworking Machinery, etc., Capitelli Lino, San Paulo, Brazil.

Lumber.—See Building Materials.

Lumber.—C. Harrison Parker, Prest. Board of Control State Penitentiary, Baton Rouge, La.—Bids until Jan. 15 for 3,000,000 ft. lumber, deliverable Angola State farm; buyer to ship out from 400,000 ft. to 500,000 ft. per month, viz: 2,000,000 ft. of cottonwood, 600,000 ft. of willow, 400,000 ft. of oak, ash and red gum; of this, 1,250,000 ft. of cottonwood now on yards ready to ship; also 300,000 feet of oak, etc.; balance to be cut within next four months.

Metal Lath.—Burt Construction Co., Gatesville, Tex.—Prices on 2000 sq. yds. metal lath.

Mill (Bone).—J. R. White, Madison Run, Va.—Prices on mill to grind bones for fertilizer.

Nails.—See Iron and Steel, Hugh Girvan.

Office Equipment.—See Drugs, etc., Interstate Doctors.

Oil (Cottonseed).—Comas Hijo, Reconquista 375, Buenos Aires, Argentina.—Interested in cottonseed-oil; view to representation.

Oils (Lubricating).—Leon Lopez, Lamparilla 21, Havana, Cuba.—Prices on oils for export. (See Cement, etc.)

Paper and Paper Bags.—Leon Lopez, Lamparilla 21, Havana, Cuba.—Prices on paper and paper bags for export. (See Cement, etc.)

Paper (Tag).—Matthew Routley, T. Rawhite Terrace, Kelburn Wellington, New Zealand.—Interested in board suitable for making tag labels; wants samples and prices from manufacturers on 3 or 5-ton lots (in reels, stating size) at convenient port for shipment to New Zealand; may require amounts of this board from time to time.

Paper-working Machinery.—See Leather-working Machinery, etc., Benson Bros.

Paving.—See Cement Curbing and Guttering, Tuskegee, Ala.

Paving, etc.—W. H. Tracy, Commr. of Public Works, Bradenton, Fla.—Bids until Jan. 8 to grade, place granite curbing and pave with vitrified brick portions of Chandler, Adams, Willow and Jefferson Sts., Vermont Pl. and 5 alleys.

Paving.—State Roads Com., Wm. L. Marcy, Secy., 601 Garrett Bldg., Baltimore, Md.—Bids until Jan. 19 for about 1.5 mi. sheet asphalt paving for Hanover St. bridge and approaches; contract No. Bc-17, section 6, Baltimore city. (See Bridge Construction, etc.)

FOR the benefit of business concerns, engineers, contractors, machinery manufacturers, dealers and others who find it profitable to follow up daily the industrial, commercial, railroad and financial development of the South and Southwest as published in this Construction Department,

We issue every Business Day in the Year THE DAILY BULLETIN

The construction news as published in the Daily Bulletin is invaluable to all business people who want to keep in daily touch with the organization of business enterprises of all kinds throughout the whole South. Unlimited possibilities for the creation of business, for securing contract work, for the sale of machinery and supplies of all kinds, for bond buyers and others, are to be found through a close following up of the news in the Daily Bulletin.

The Daily Bulletin is an exceptionally desirable advertising medium.

The subscription price is \$25.00 a year. Are you a subscriber to it, or an advertiser in it? If not, you are missing an opportunity for profitable business.

Drykilns.—G. H. Peacock, Selma, Ala.—One second-hand drykiln of 40,000 capacity, or two of 20,000 or three of 15,000 capacity for yellow pine lumber.

Electric Plants.—See Cotton Gin, etc., Conroe Gin, Ice & Light Co.

Electric-lighting Equipment.—See Plumbing, etc., Treasury Dept.

Electrical Equipment, etc.—Diamond Hoop Co., L. U. Watson, Mgr., Proctor, Ark. Prices on electric equipment and drag saw.

Electrical Equipment, etc.—Navy Dept., Bureau of Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Jan. 19 for following: Miscellaneous interior communication cable, 400,000 ft. silicon bronze aerial wire, miscellaneous double conductor wire for portables, plain wire, all schedule 775; also miscellaneous magnet wire, 1400 ft. rattail wire and 1750 lbs. copper trolley wire, delivery Brooklyn, N. Y.; 2000 carbons for Adams Bagnal lamps, schedule 772, and 86 type CN telephones, schedule 7762, delivery Norfolk, Va.; one 100 H. P. induction motor, schedule 7758, and two 120 K. W. oil-cooled transformers, schedule 7756, delivery Washington, D. C.; schedules on application to navy pay office nearest navy-yard.

Electrical Machinery.—Jacobs Auto Co., Shelbyville, Tenn.—Generator set for recharging storage battery.

Engine (Gasoline or Oil).—See Corn Mills, Chas. W. Lancaster.

Flypaper Machinery.—Bruno Fuchs, 50 E. 107th St., New York.—Addresses of manufacturers of flypaper machinery.

Fuses.—See Brass Material, etc., J. B. Ammons.

Glass Bulbs.—See Brass Material, etc., J. B. Ammons.

Glove Machinery.—Tranquilla Mfg. Co., J. Imman Davis, Mgr., Hepzibah, Ga.—Prices on dies for cutting gloves and gauntlets; power serving machines; glove turners; capacity 100 doz. cotton canvas gloves daily at start.

Grinding Machinery.—See Mill (Bone), J. R. White.

Handle Manufacturers.—Cyclone Machine Co., 337 N. Main St., Pittston, Pa.—Names of manufacturers of pick, sledge and axe handles.

Hardware.—See Cement, etc., Leon Lopez.

Heating Plant, etc.—City Commrs., Lewis Fisher, Mayor-Prest., Galveston, Tex. Bids at office City Secy. until Jan. 7 to furnish and install steam heating plant, plumbing and electrical work in City Hall Bldg.; specifications on file with City Secy., City Hall.

Hoists (Trolley).—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Jan. 19 on 36 trolley hoists for handling 14-in. shells, schedule 7759, delivery Brooklyn, N. Y.; schedules on application.

Peanut Machinery.—Geo. J. Roark, Secy., Chamber of Commerce, Denton, Tex.—Data and prices on machinery, etc., to add to equipment of modern cottonseed-oil mill to manufacture peanut by-products.

Pipe-Cutting Machine, etc.—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids until Jan. 12 to furnish at navy-yard, Charleston, S. C., a pipe-cutting and threading machine and 2 buffing lathes, schedule 7721; blanks on application to navy pay office, Charleston, or to bureau.

Pipe.—Hugh Girvan, 120 Cannon St., London, E. C. Eng.—Prices (view to representation) on cast-iron underground pipes for gas, water and drainage; also prices on wrought-iron tubes for gas, water and steam.

Pistols.—Capitelli Lino, San Paulo, Brazil.—Prices on automatic pistols, 6 and 8 shooters. (See Woodworking Machinery, etc.)

Plumbing, etc.—Treasury Dept., Office of O. Wenderoth, Supervising Archt., Washington, D. C.—Bids until Jan. 30 for new plumbing system, conduit and wiring system and interior lighting fixtures, U. S. custom-house, St. Louis, Mo.; drawings and specifications obtainable from custodian of building, St. Louis, or at office of architect, at his discretion.

Printing Machinery.—Lloyd Publishing Co., J. L. Lloyd, Prest., Raleigh, N. C.—Catalogues of complete equipment for \$25,000 publishing plant.

Press (Toggle), etc.—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids until Jan. 12 to furnish at navy-yard, Washington, the following: Schedule 7719, double-action toggle press, lathes; schedule 7725, retorts; schedule 7731, ether and alcohol still; schedule 7735, double-braided copper wire; blanks on application to bureau.

Provisions.—See Convict Cages, etc., Levy County Commrs., Bronson, Fla.

Rails.—See Iron and Steel, Hugh Girvan.

Rails, etc.—A. S. Anderson, Millen, Ga.—Rails for 6 mi. railroad construction; also one locomotive.

Retorts.—See Lathes, etc., Navy Dept.

Road Construction.—Road Commrs. (R. H. Crox and others), Chattanooga, Tenn.—Bids until Jan. 6 to grade and chert roads: Cassandra Smith Rd., 2d Dist.; Dougherty's Ferry Rd., 7th Dist.; McCallie's Ferry Rd., 3d Dist.; road from Birds Mill Rd. to Chickamauga station, east of Chickamauga Creek; McBriant Rd., 5th Dist.; Dobbs Rd., 5th Dist.; Harrison pike, 6th Dist.; bids to be made separately for each of above roads at price per cu. yd. for grading—first for dirt and second for rock; profile of each road to be furnished bidders.

Road Construction.—Road Commrs. Grant Dist. of Wetzel County, Smith Blair, Secy., Jacksonburg, W. Va.—Bids until Jan. 9 to construct portion of Arched Fork Rd in Grant Dist. from bridge across South Fork of Fishing Creek up Arched Fork for about 1500 ft.; 1436 cu. yds. excavation; for plans and specifications apply at office of Special Dist. Engr., Jacksonburg.

Road Construction.—Maryland State Roads Com., O. E. Weller, Chmn., 601 Garrett Bldg., Baltimore, Md.—Bids until Jan. 19 to construct 5 sections, about 10.56 mi., State highway, as follows: Garrett county, .85 mi., macadam or concrete, through Grantsville; Prince George's county, 3.03 mi., macadam or concrete, from Meadows to Camp Springs; also 2.45 mi. macadam or concrete, from Upper Marlboro to Hill's bridge; Queen Anne's county, .65 mi. macadam or concrete, through Church Hill; St. Mary's county, 3.58 mi. 4-in. gravel surfacing, from Ridge to Confederate Monument; plans and specifications on application and payment of \$1 for each contract.

Roofing.—See Building Material.

Road Roller.—Warner County, M. H. Crump, Road Engr., Bowling Green, Ky.—Gasoline or oil road roller, 10 tons capacity; bids received in Jan. and Feb.

Rubber-working Machinery.—See Leather-working Machinery, etc., Benson Bros.

Saw (Drag).—Diamond Hoop Co., L. U. Watson, Mgr., Proctor, Ark.—Prices on drag saw. (See Electrical Equipment, etc.)

Saws.—Salem Iron Works, 206 S. Liberty St., Winston-Salem, N. C.—Correspondence with manufacturers of small saws, some what similar to gin saws.

Seating.—Nashville Building Specialties Co., 50 Arcade, Nashville, Tenn.—Prices on seating, especially seats for theaters and moving picture houses.

Sewer Construction.—City of Carthage, Mo.—Opens bids Jan. 11 to construct sewers: 5835 ft. 10-in., 2629 ft. 12-in. and 5570 ft. 15-in. tile; Frank B. Newton, Engr.

Spreaders (Lime).—Geo. M. Crider, care Crider & Woods, Marion, Ky.—Lime-spreading machinery. (See Crushing (Rock) Machinery, etc.)

Steel Lock Gates.—U. S. Engr. Office, T. H. Jackson, Major, Engrs., Wheeling, W. Va.—Bids until Jan. 30 to furnish and erect steel lock gates for Dam No. 15, Ohio River. Information on application.

Steel Standpipe.—See Water-works Materials, Construction, etc., Sweetwater, Tex.

Steel Rods.—Hillier & Sperring Co., Jacksonville, Fla.—Steel rods. (See Cement, etc.)

Steel Towers.—Navy Dept., Bureau of Yards and Docks, H. R. Stanford, Chief, Washington, D. C.—Bids at this office and at U. S. Naval Station, Cavite, P. I., until Feb. 27 to construct and erect three 600-ft. steel towers at each of following naval stations: San Diego, Cal.; Pearl Harbor, Hawaii, and Cavite, P. I.; plans and specifications on application to bureau or at naval stations named.

Stone (Crushed).—See Cement, etc., Hillier & Sperring Co.

Stoves.—Glover Machine Works, Marietta, Ga.—Catalogues and prices on stoves (Lathrobe preferred) for burning run of mine bituminous soft coal.

Street Sprinkling.—Board of Public Service, St. Louis, Mo.—Bids until Jan. 19 to sprinkle city streets next summer; contracts to be let in 40 sections for sprinkling about 615 mi. of streets; estimated cost \$300,000.

Tanks (Iron).—American Mfg. & Refining Co., Richmond, Va.—Three 10,000-gal. second-hand iron tanks, one to have inside piping for steam coils; immediate delivery; tanks are for storage only, and used railroad tank cars will answer.

Telephones.—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—Bids opened Feb. 2 on 49 type C. N. telephones, schedule 7756, delivery Puget Sound, Wash.; schedules on application.

Tile Flooring.—W. C. Tise Bottling Works, Winston-Salem, N. C.—Tile for flooring.

Tools.—See Woodworking Machinery, etc., Capitelli Lino.

Tractor (Caterpillar).—Warner County, M. H. Crump, Road Engr., Bowling Green, Ky.—60-40 H. P. caterpillar; capacity 40 yds. up 10 per cent. grade; bids received Jan. and Feb.

Washers (Metal, Cup).—Harry M. Hall, Box 113, Waynesville, N. C.—Addresses of manufacturers who would make small metal cup washers; will furnish sample.

Water-works Materials.—City Council, A. P. Albaugh, Prest., Tarpon Springs, Fla.—Bids until Jan. 5 for water-works material as follows: 3552 ft. 8-in. cast-iron pipe, 4404 ft. 6-in. cast-iron pipe, 6.83 tons specials, 23 fire hydrants, 9 8-in., 9 6-in. and 9 4-in. gate valves and boxes; specifications obtainable from Prest. of Council.

Water-works Materials, Construction, etc.—City of Sweetwater, Tex., Geo. T. Wilson, Mayor.—Consider bids Jan. 20 to purchase following: 50 fire hydrants, 6 in. inlet, one 4-in. outlet, two 2½-in. outlets, 5-ft. barrel, automatic drain and working pressure of 125 lbs. per sq. in.; 60 iron body, tub ends, gate valves, 4 to 12 in., working pressure 125 lbs. per sq. in.; 12 doz. blow-off valves for 12-in. line, working pressure 30 lbs. per sq. in.; ¼ doz. automatic air escapes; 1500 18-in. extension service boxes; 500 water meters; 1500 Mueller corporation cocks, ½ to 1 in.; 1500 wiped joint, 18-in. zoose-neck connections, ½ to 1 in.; approximate quantities; dealers invited to submit data and prices before Jan. 20. Steel standpipe: Bids considered same date to furnish and erect 250,000-gal. cylindrical steel standpipe, 28-in. diam., 60 ft. high; concrete base to be constructed by city; plans, specifications and prices to be submitted before Jan. 20. Gravity conduit: open bids same date (Jan. 20) to construct 2-in.-diam. cast-iron gravity conduit from Lake Trammell to Sweetwater, 6½ mi.; engineer's estimate of cost, \$16,000, not including pipe, which has been purchased by city; plans and specifications on file office of W. H. Bartlett, City Secy.

Wax.—J. B. Ammons, Washington, D. C., general delivery.—Wax manufactured to special order. (See Brass Material, etc.)

Weights (Water).—Navy Dept., Bureau Supplies and Accounts, Saml. McGowan, Paymaster-Gen., Washington, D. C.—

Bids opened Jan. 19 for three water weighers for measuring condensed steam, schedule 7756, delivery—Charleston, S. C.; schedules on application.

Wire.—See Electrical Equipment, Navy Dept.

Wire (Telephone).—J. B. Ammons, Washington, D. C., general delivery.—Telephone wire. (See Brass Material, etc.)

Wire.—See Iron and Steel, Hugh Girvan.

Wire Nests.—S. T. Kittrell, Driver, Va. Addresses of manufacturers of wire nests for hens.

Woodworking Machinery.—See Excelsior Machinery, etc.

Woodworking Machinery.—J. B. Von Canon & Bro., West End, N. C.—Prices on machinery for manufacture of interior hardwood finish, such as inlaid floors, stairways, trim, etc.

Woodworking Machinery, etc.—Capitelli Lino, San Paulo, Brazil.—Interested, view to representation, in following: Lubricants, tools, leather belts, chamols skin, machinery for working wood, seed-sowing machinery, etc.; also desires correspondence with manufacturers of automatic pistols, 6 and 8 shooters, and with producers of iron (feratul.)

Wooworking Machinery.—See Chair Machinery, J. E. Crosier.

FINANCIAL NEWS

The MANUFACTURERS RECORD invites information about Southern financial matters, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

FINANCIAL CORPORATIONS

Ala., Atmore.—First National Bank approved; capital \$25,000; organizers, J. P. McMurphy, W. D. Owens, Jr., C. C. Huxford, M. Benerson and H. H. Patterson.

Ala., Birmingham.—American Loan & Pledge Co., authorized capital \$25,000, incorporated; John D. Elliott, Prest.; Alvin M. Douglas, V. P.; J. D. Ray, Secy. and Treas.; Vent W. Speaker, Gen. Mgr.

Ala., Piedmont.—The Farmers and Merchants' Bank, which is being organized with \$15,000 capital, expects to begin business about Feb. 15. Directors will be C. N. Thompson, Prest.; J. H. Barlow, V. P.; J. W. Strange, Cash.; J. F. Morgan, I. Adelstein, F. E. Webb, W. B. Penny, T. Williams and S. B. Canter.

Ark., Rector.—The Bank of Rector has purchased the Citizens' Bank. J. C. Rogers is Prest.

Ark., Little Rock.—Arkansas Valley Bank is organized with \$10,000 capital; J. C. Gardner, Prest.; C. E. Speer, V. P.

Ark., Little Rock.—St. Louis Union Bank, with capital and surplus of \$5,000,000, is organized by the St. Louis Union Trust Co.; N. A. McMillan, Prest.; John F. Shepley, Henry C. Haastick and Robert S. Brockings, V. Ps.; F. V. Dobrouillet, Cash.; J. S. Walker, Byron W. Moser, L. E. Williams, G. M. Willing, Asst. Trust Officers; W. J. D. McCarter and J. E. Uhrig, Asst. Cashs.; A. H. L. Kuhn, Mgr. Savings Dept.

Ga., West End.—Bank of West End has made application for charter; capital \$25,000; incorporators, H. T. Kilpatrick, J. S. Sewell and W. M. Pool.

Ky., Glencoe.—Union Bank of Glencoe, capital \$20,000, inceptd. by J. L. Hendrix, J. J. Kemper, A. M. Shupert and Elmer Elliston. Okla., Oklahoma City.—Edmundson Investment Co. chartered and inceptd.; capital \$15,000; J. D. Edmundson, Prest. and Treas.; Geo. Hosbetter, V. P.; P. J. Hodgins, Secy. Business began Jan. 1.

Okla., Talihina.—First National Bank chartered; capital \$25,000; John T. Bailey, Prest.; T. L. Francis, Cash. This is a conversion of the First State Bank.

S. C., Cowards.—Farmers and Merchants' Bank commissioned; capital \$25,000; petitioners, E. M. Singletary, Z. C. Lynch, E. L. Montgomery and T. J. Cottingham.

S. C., Elloree.—First National Bank is approved; capital \$42,000. This is a conversion of the Bank of Elloree.

S. C., Holly Hill.—First National Bank of Holly Hill is approved; capital \$25,000. This is a conversion of the Bank of Holly Hill.

S. C., Johnsonville.—Farmers and Merchants' Bank commissioned; capital \$25,000;

petitioners, S. B. Poston, A. G. Eaddy, C. W. Boyd and T. J. Cottingham.

S. C., Orangeburg.—People's National Bank chartered; capital \$100,000; D. O. Herbert, Prest.; J. W. Culler, Cash. This is a conversion of the People's Bank.

S. C., Pamlico.—Farmers and Merchants' Bank commissioned; capital \$25,000; petitioners, W. W. Coleman, W. A. Coleman, E. P. Bond and T. J. Cottingham.

S. C., Sumter.—National Bank of Sumter is chartered; capital \$200,000; Richard I. Manning, Prest.; Bernard Manning, Cash. This is a conversion of the Bank of Sumter.

Tex., Corsicana.—The City National Bank has merged with the Corsicana National Bank. Capital will be \$100,000. John A. Thompson is Prest.

Tex., Eddy.—The First National Bank of Eddy, a conversion of the First State Bank of Eddy, is chartered; capital \$50,000; surplus \$15,000; directors, J. R. Knight, Prest.; P. N. Dilworth, V. P.; E. F. Baxter, Cash.; A. J. Kincannon, L. T. Wariner, E. L. Cook and D. W. Harwell. V. N. Adams is Asst. Cash.

Tex., Hawkins.—First State Bank has made application to convert into the First National Bank; capital \$30,000.

Tex., Tulla.—Culton Abstract & Title Co. chartered; capital \$10,000; incorporators, D. H. Culton, R. A. Underwood and P. C. Taylor.

W. Va., Shinnston.—People's Bank is being organized by J. F. Shaffer, A. W. Martin and N. D. Cox.

NEW SECURITIES

Ala., Gadsden.—It is probable that the \$200,000 Etowah county road bonds voted last November will soon be offered for sale. Address County Commrs.

Ala., Vernon.—Bids will be received until noon Jan. 19 for \$50,000 15 25-year Lamar county road bonds; bidder to state rate of interest bid is based on; denomination \$500. Address R. L. Bradley, Judge of Probate.

Ark., Harrison.—Election called for Dec. 22 to vote on \$45,000 sewer and \$45,000 water bonds is postponed until March or April. Date not yet determined. Geo. C. Frew, Mayor.

Ark., Helena.—After the decision of a suit now pending in the Supreme Court of Arkansas it is probable that Cotton Belt Dist. No. 1 may put on the market \$350,000 6 per cent. 24-year bonds. Address Commrs. of District.

Ark., Fulton.—\$12,500 6 per cent. 5-25-year school-building bonds have been purchased by Gunter & Sawyer, Little Rock. Address The Mayor.

Ark., Rocky Comfort.—\$15,000 6 per cent. 5-30-year school district building bonds have been purchased by Gunter & Sawyer, Little Rock.

Ark., Waldron.—\$14,000 6 per cent. 5-22-year bonds Waldron School Dist., Scott county, have been purchased by Gunter & Sawyer, Little Rock.

Fla., Bradentown.—Manatee county proposes, it is stated, to issue \$165,000 Sarasota-Venice road and bridge district bonds. Address County Commrs.

Fla., Bronson.—\$12,000 Levy county 8 per cent. warrants have been purchased by the State of Florida.

Fla., Bronson.—\$15,000 6 per cent. bonds Levy county School Dist. No. 7 have been purchased by the State of Florida.

Fla., Dunedin.—\$8000 6 per cent. bonds Pinellas County Special Tax School Dist. No. 5 have been purchased by the State of Florida.

Fla., Gainesville.—Bids will be received until 10 A. M. Jan. 19 by J. L. Kelley, Secy. Board of Public Instruction, for \$30,000 5 per cent. \$1000 bonds Special Tax School Dist. No. 26, Alachua county.

Fla., Milton.—\$25,424.92 warrants Santa Rosa county have been purchased by the State of Florida.

Fla., Milton.—\$8000 5 per cent. 30-year bonds have been purchased by the State of Florida.

Fla., Pensacola.—\$14,948.99 8 per cent. Escambia county warrants have been purchased by the State of Florida.

Fla., Sarasota.—The election to vote on \$165,000 road and bridge bonds will be held in February. Address Mayor Edwards.

Fla., Seabreeze.—\$15,000 30-year water bonds are voted. Address The Mayor.

[For Additional Financial News, See Page 70.]

Merchants-Mechanics National Bank

South and Water Sts. BALTIMORE, MD.

DOUGLAS H. THOMAS, President
JNO B RAMSAY V.-P. and Chm Bd of Dir.
JOHN B H DUNN, CashierCapital \$2,000,000 Deposits \$21,670,000
Surplus and Profits \$2,175,000

Accounts of Banks, Bankers, Corporations and Individuals solicited

We invite correspondence.

Edwin Warfield, President

Fidelity and Deposit Company of Maryland

Home Office: Baltimore

Total Assets over \$11,000,000.00

All Kinds and Classes of Surety Bonds and Casualty Insurance

Largest and Strongest Surety and Casualty Company in the World

The National Exchange Bank

OF BALTIMORE, MD.

Hopkins Place, German and Liberty Streets
Capital \$1,000,000

August 9th, 1913, Surplus and Profits, \$764,091.00

OFFICERSWALDO NEWCOMER, President.
SUMMERFIELD BALDWIN, Vice-Pres.
R. VINTON LANSDALE, Cashier.
C. G. MORGAN, Asst. Cashier.

Accounts of Mercantile Firms, Corporations, Banks, Bankers and Individuals invited.

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Tribune Building NEW YORK, N. Y.
Confidential Negotiations, Investigations, Settlements, Purchase of Property**We Buy Bonds**

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We are making a wonderful proposition, and our salesmen cannot reach all of you.

Young & Selden Co.**BANK STATIONERS BALTIMORE, MD.**Lithographing, Printing, Envelopes
Blank Book Making, Book Binding
Letter Heads, Office Supplies
Steel Die Work**The First National Bank**

17 South St., Baltimore, Md.

Capital - - \$1,000,000
Surplus and Net Profits. 450,000
Deposits. - - 8,500,000

Especially well equipped to handle the business of Southern Banks, Corporations, Individuals and Manufacturers. We cordially invite correspondence and interviews.

Delaware Trust Company

Wilmington, Delaware

INCORPORATING under broad, liberal, safe and stable Delaware laws. A fully equipped department for proper organization and registration of corporations. BANKING AND TRUST department gives special attention to out of town customers' accounts.

TITLE DEPARTMENT examines and guarantees title to realty throughout Delaware.

REALTY DEPARTMENT has sites for manufacturing industries. Modern Methods of management of property

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WM. G. TAYLOR, Vice-Pres. and Treasurer.
HARRY W. DAVIS, Vice-Pres. and Secretary
W. W. PUSEY, 2nd, Title and Real Estate Officer**The First National Bank**

OF KEY WEST, FLA.

United States Depository and Disbursing Agent
Capital - - \$100,000
Surplus and Undivided Profits - - 40,000A general banking business transacted
Special attention given to collections**JOHN NUVEEN & CO.**First National Bank Building
CHICAGO

We purchase SCHOOL, COUNTY and MUNICIPAL BONDS. Southern Municipal Bonds a Speciality.

Write us if you have bonds for sale.

FIRST NATIONAL BANK

RICHMOND, VIRGINIA

Capital and Surplus - - \$3,000,000

JNO. B. PURCELL, President

JNO. M. MILLER, Jr., Vice-Pres.

W. M. ADDISON, Cashier

We FinanceElectric Light, Power and Street Railway Enterprises
With Records of Established Earnings**We Offer**Bankers and Investment Dealers
Proven Public Utility Securities
Correspondence Solicited**Electric Bond and Share Company**

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Washington, D. C.

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School and Drainage**BONDS**

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BALTIMORE, MD.

Capital for Southern Industries**Peabody, Houghteling & Co.**

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Contemplating the Establishment of Industrial Enterprises

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NEWPORT NEWS, VA.

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W. B. LIVEZEY, President

OLD DOMINION LAND COMPANY
NEWPORT NEWS, VA.**Temporary Financing of States, Cities and Counties
Pending Issuance of Bonds**

ALSO ENTIRE ISSUES OF BONDS PURCHASED

Largest Capital and Surplus of Any Financial Institution in Maryland
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Established 1884

Resources Sixteen Millions

MERCANTILE TRUST AND DEPOSIT COMPANY

OF BALTIMORE

A. H. S. POST, President

F. G. BOYCE, Jr., Vice-President

Fla., Tavares.—\$25,000 6 per cent. bonds lake county school Dist. No. 1 have been purchased at \$74.85 premium by the State of Florida.

Fla., Trenton.—Bids will be received until 10 A. M. Jan. 19 by J. L. Kelley, Secy. Board of Public Instruction Special Tax School Dist. No. 16 at Gainesville for \$4000 6 per cent. \$200 school bonds.

Fla., Vernon.—\$30,184.98 6 per cent. bonds Washington County School Dist. No. 1 have been purchased by the State of Florida.

Fla., Wauchula.—\$11,000 6 per cent. 30-year bonds have been purchased by the State of Florida; State has also purchased \$15,000 6 per cent. bonds, dated July 1, 1914.

Fla., West Palm Beach.—Bids will soon be asked for \$15,000 of bonds Dist. No. 4, Palm Beach county. Address County Supt. of Public Instruction, West Palm Beach.

Ga., Hawkinsville.—Steps are being taken to call an election to vote on \$15,000 school and \$10,000 sewerage bonds. Address Mayor Jordan.

Ga., Macon.—Election will be held March 4 to vote on \$100,000 paving, \$50,000 sewer and \$150,000 hospital bonds. Bridges Smith is Mayor.

Ga., Rome.—Election will be held Feb. 11 to vote on \$75,000 municipal building and \$25,000 public hospital 4 per cent. 10-20-year \$1000 bonds. Address J. D. Hanks, Mayor. Hugh McCrary is City Clerk.

Ga., Savannah.—\$200,000 auditorium bonds will, it is stated, be placed on the market in February. Address R. J. Davant, Mayor.

Ky., Barbourville.—Petition is being circulated in Knox county calling for an election Feb. 15 to vote on \$200,000 road bonds. Address County Commrs.

La., Baton Rouge.—Bids will be received until noon Jan. 30 for \$180,000 5 per cent. \$1000 bonds Road Dist. No. 2, East Baton Rouge parish; maturity 1916 to 1941. Joseph Gehlert is Pres. Police Jury East Baton Rouge parish.

La., Crowley.—Election is to be held Feb. 2 to vote on \$38,000 5 per cent. bonds Fifth Ward Drainage Dist. No. 1, Acadia parish. Ellis Hoffpauir is Pres. Board of Commrs.

La., Gonzales.—Bids will be received until noon Feb. 4 by Board of Commrs. New River Drainage Dist., Edenborn Station, Gonzales, for \$175,000 5 per cent. 38-year drainage bonds.

La., New Orleans.—Bids will be received until 11 A. M. Jan. 26 by A. G. Ricks, Commr. of Public Finances, for \$550,000 5 per cent. coupon tax-free paving certificates; denominations, \$100, \$500 and \$1000.

Miss., Brandon.—\$50,000 road bonds Beat No. 5, Rankin county, defeated.

Miss., Magnolia.—\$100,000 6 per cent. 25-year bonds Supervisors' Dist. No. 4, Pike county, have been purchased by Hochler, Cummings & Prudden of Toledo; denomination \$500.

Miss., Magnolia.—Pike county is reported to have sold about \$100,000 road bonds. Address County Commrs.

Miss., Vicksburg.—Bids were received until noon Jan. 6 by J. D. Laughlin, Clerk Board of Supvrs. Warren County, for \$140,000 5 per cent. 5-40-year Warren county road bonds.

Mo., New Haven.—\$9700 5 per cent. 20-year electric-light and water bonds have been purchased by local parties. Address The Mayor.

Mo., North Kansas City.—\$5000 6 per cent. 5-year bonds School Dist. No. 74 were purchased by Commerce Trust Co., Kansas City.

Mo., Rolla.—\$27,500 5 per cent. 10-20-year school district bonds were purchased by Francis Bros. & Co., St. Louis, at par.

N. C., Cherryville.—\$21,000 5 per cent. 30-year school bonds have been purchased at par by Sidney Spitzer & Co., Toledo.

N. C., Danbury.—The election to vote on \$50,000 road bonds, Quaker Gap township, Stokes county, will be held Jan. 19. Address J. G. Morefield.

N. C., Fuquay Springs.—Steps are being taken to hold an election to vote on \$25,000 high school bonds. E. J. Ragsdale may be able to give information.

N. C., Greensboro.—\$100,000 of street bonds will, it is stated, soon be placed on the market. T. J. Murphy is Mayor.

N. C., Lumberton.—Back and Jacob Swamp Drainage Dist. will probably issue refunding bonds. W. P. Barker, J. B. Sellers, D. B. McNeill, D. H. Britt and Rory McNair have been appointed a committee.

N. C., Southport.—\$35,000 Brunswick county road bonds have been sold. Geo. H. Gray is Register of Deeds.

Okla., Oklahoma City.—The \$240,000 water bonds to be voted on Jan. 15 are 25-year 5 per cents. Whit M. Grant is Mayor.

S. C., Allendale.—\$65,000 5 per cent. 20-40-year water, light and sewer bonds have been purchased by J. H. Hillsman & Co., Atlanta.

S. C., Columbia.—Petitions are being circulated for a \$250,000 school bond issue. Address Supt. of School Board.

S. C., Columbia.—\$60,000 paving bonds have been purchased by Sidney Spitzer & Co., Toledo.

Tenn., Chattanooga.—\$6142.12 6 per cent. 4-year paving bonds were purchased Dec. 23 by Hanchett Bond Co., Chicago, at premium of \$67 and accrued interest. T. C. Thompson is Mayor.

Tenn., Dayton.—\$250,000 Rhea county road bonds have been validated by the Supreme Court and steps will be taken immediately to sell the bonds. Floyd Knight is County Clerk.

Tenn., Dresden.—\$27,000 water and light bonds are reported sold to Eastern parties. Address The Mayor.

Tenn., Knoxville.—A resolution is to be presented to the Legislature asking that Knox county be permitted to issue \$100,000 of bonds to purchase Cherokee property. Address County Commrs.

Tenn., Memphis.—Bill is being prepared, it is reported, providing for the refunding of \$386,000 of bonds maturing next July. Address The Mayor.

Tenn., Preston.—Bids opened 12.30 P. M. Jan. 5 for \$15,000 6 per cent. Webster county courthouse bonds. Address W. P. Addy, Chron. Board of Commrs. Roads and Revenues of Webster County.

Tex., Angleton.—\$80,000 drainage district bonds were recently voted. Address Board of Drainage Commrs.

Tex., Bay City.—Bids will be received until 10 A. M. Jan. 11 for \$30,000 5½ per cent. (not 5 per cent.) bonds Road Dist. No. 6, Matagorda county. R. R. Lewis is County Judge. Further particulars will be found in the advertising columns.

Tex., Belton.—\$250,000 bonds Road Dist. No. 19 will be offered for sale as soon as the Court of Civil Appeals passes upon the legality of the issue, which will probably be within 30 days. W. S. Shipp is County Judge Bell county.

Tex., Boerne.—The \$25,000 Precinct No. 1, Kendall county, road bonds recently voted are 20-40-year 5 per cents. Address County Commrs.

Tex., Brownwood.—Election will probably be held to vote on public improvement bonds. Address The Mayor.

Tex., Bryan.—\$600,000 Brazos county road bonds defeated.

Tex., Center.—\$1800 bonds common school Dist. No. 42, Shelby county, have been sold. Bids are now being received for \$1700 5 per cent. 20-year bonds common school Dist. No. 57. Address J. R. Hammer, County Supt.

Tex., Corsicana.—\$75,000 bonds Road Dist. No. 3 (Barry), Navarro county, have been purchased at par and accrued interest by Fred Smith of Dallas.

Tex., Gainesville.—\$50,000 5½ per cent. 5-10-year Cooke county road and bridge warrants have been purchased by E. B. Blanton, Mgr. Bond Dept. Commonwealth Trust Co., Houston.

Tex., Goliad.—\$126,000 5½ per cent. 1-30-year Goliad county road and bridge warrants have been purchased by E. B. Blanton, Mgr. Bond Dept. Commonwealth Trust Co., Houston.

Tex., Johnson City.—The Attorney-General of Texas has disapproved the issuing of bonds of Blanco County Road Dist. No. 1, consequently no bonds will be issued. Wm. Martiny is County Judge.

Tex., Kerens.—\$21,500 5 per cent. 20-year water-improvement bonds have been purchased at par by R. J. Edwards & Co., Oklahoma City. J. M. Daniel is Mayor.

Tex., Mission.—Election will probably soon be held to vote on water-works and electric-light-plant bonds. Willard Ferguson is Mayor.

Tex., Ozona.—Board of Supvrs. of Crockett County has under consideration the issuing of \$175,000 tuberculosis hospital and \$65,000 4½ per cent. county home improvement bonds. Address County Commrs.

Tex., Paris.—\$200,000 5 per cent. 50-year municipal-improvement bonds were voted Dec. 23; \$50,000 of school and \$50,000 street-improvement bonds will probably be sold now; denomination \$1000. Bonds will probably be dated Feb. 10, 1915. Ed H. McCus-ton is Mayor.

Tex., San Augustine.—\$8000 bonds common school district No. 13, San Augustine county, were recently voted. Address County Commrs.

Tex., San Benito.—Election is to be held Feb. 6 to vote on \$8000 street and sewer bonds. Address The Mayor.

Tex., Sulphur Springs.—Bids will be received until 2 P. M. Jan. 19 for \$30,000 5 per cent. street-paving bonds; dated March 1, 1914; mature serially \$1250 each year, optional after 10 years; denominations, \$500 and \$750. L. E. Gee is Mayor and B. C. Pate City Secy.

Tex., Waco.—The \$15,000 street, \$18,000 sewer and \$12,000 bridge bonds to be voted on Jan. 22 are 30-year 5 per cents. J. W. Rig-gins is Mayor.

Tex., Wharton.—Election is to be held in Wharton county Jan. 14 to vote on \$60,000 5 per cent. 40-year bonds Drainage Dist. No. 3.

Tex., Wichita Falls.—\$25,000 5 per cent. 40-year \$1000 Wichita County Hospital bonds have been purchased at par, accrued interest, less \$625 for commission, by J. E. Sutherlin, Kansas City, Mo.

Va., Ashland.—\$15,000 5 per cent. 20-year building bonds are voted. Address The Mayor.

Va., Fairfax.—\$40,000 Fairfax county road bonds have been purchased at 100.3 by Baker, Watts & Co., Baltimore.

Va., Pulaski.—\$38,000 5 per cent. 30-year school district high-school building bonds were voted Dec. 31. Address J. F. Wyssor, Treas.

Va., Vinton.—\$50,000 6 per cent. 32-year street and sewer bonds voted recently have been sold by the American National Bank of Roanoke as follows: Insurance Dept., Knights of Pythias, Indianapolis, \$25,000; Roanoke capitalists, \$25,000. Address The Mayor.

W. Va., Moorefield.—Voted: \$8000 sewer bonds. Address The Mayor.

W. Va., Pike.—Question of issuing \$10,000 fire-department bonds is under consideration. Address The Mayor.

W. Va., Wheeling.—Election is to be held in Richland Dist., Ohio county, Jan. 26 to vote on \$50,000 5 per cent. school bonds. George S. Eberts is Pres. Board of Education, Richland Dist.

Siesta Island Development.

Sarasota, Fla., December 29.

Editor Manufacturers Record:

I have completed a hotel at Siesta, with all modern improvements and conveniences, hot and cold water in each room, electric lights, etc., being right on the waterfront, and am erecting a system of bungalows in connection with this hotel that will be rented at a moderate price, giving the people of ordinary means an opportunity of occupying their own bungalow on the Gulf and take their meals at the dining-room of the hotel, which will accommodate 250 people.

I have also 10 acres in tomatoes and eggplants, which have gone through all the cold spell this year, and will ship them through January, February, March, April, May and into June. I am also having cleared 15 acres for the spring crop.

There will be an election called in the Sarasota Bay District, to be held in February, for a bond issue of \$165,000. From this bond issue a bridge will be built from the mainland two miles south of Sarasota, connecting Siesta with a public hard road through Siesta to the Gulf beach. This will then put Sarasota Key in direct connection with the outside world and put thousands of acres of the best and most fertile lands in the country, on the market for agricultural purposes and tropical growth.

HARRY L. HIGEL.

Central Savings Bank of Baltimore

S. E. Corner Charles and Lexington Sts.

BALTIMORE, MD.

ANNUAL REPORT OF THE CONDITION OF THE

CENTRAL SAVINGS BANK OF BALTIMORE

In the State of Maryland, at the close of business December 31, 1914, in conformity with Section 36 of the Banking Law.

Funds on hand December 31, 1913.....	\$10,230,797.14
Received from depositors during 1914.....	2,951,251.44
Received interest and dividends on stocks, bonds, loans, etc., during 1914.....	467,014.13
Total.....	\$13,649,062.71
Paid depositors during 1914, including interest.....	\$3,445,738.34
Paid expenses during 1914.....	34,741.42
Paid taxes during 1914.....	29,352.20
Paid premiums during 1914.....	7,152.91
Ledger cost of bonds reduced during 1914.....	56,638.74
Funds on hand December 31, 1914.....	10,075,439.10
Total.....	\$13,649,062.71

ASSETS (Book Value).

Bonds and stocks owned.....	\$5,495,254.92
Loans on mortgages.....	2,259,635.00
Loans on collateral.....	573,894.17
Real estate (bank building).....	200,000.00
Other real estate owned.....	42,153.79
Perpetual insurance deposits.....	850.00
Cash on hand and in banks.....	503,591.22
Total.....	\$10,075,439.10

LIABILITIES.

Due depositors, including 3½ per cent. interest credited December 31, 1914.....	\$9,169,874.84
Guarantee fund.....	905,474.26
Surpluses.....	99.00
Total.....	\$10,075,439.10

Accounts open December 31, 1913.....	21,329
Accounts opened during 1914.....	1,661
Accounts closed during 1914.....	2,073
Accounts open December 31, 1914.....	20,917

WILTON SNOWDEN.

J. WILSON COLE,

Treasurer.

Baltimore, January 1, 1915.

We find upon examination that the investments of the Central Savings Bank of Baltimore have been carefully made in bonds of the most substantial character, that its loans are well secured, and that it is economically and judiciously managed.

GUSTAVUS OBER,
JOSEPH R. WALKER,
S. STERETT MCKIM.

Eutaw Savings Bank of Baltimore

S. W. Corner Eutaw and Fayette Sts.

ANNUAL REPORT

OF THE CONDITION OF THE

**Eutaw Savings Bank
OF BALTIMORE**

in the State of Maryland, at the close of business December 31, 1914, in conformity with Section 36 of the Banking Law.

Funds on hand December 31st, 1913.....	\$28,036,302.28
Received from Depositors during 1914.....	7,441,150.80
Received interest and dividends on stocks, bonds, loans, etc., during 1914.....	1,283,268.87
Total,	\$36,760,721.95

Paid Depositors during 1914, including interest..	\$8,111,082.30
Paid expenses during 1914.....	55,767.49
Paid taxes during 1914.....	68,336.81
Reduction in cost of Banking House.....	13,158.07
Paid premiums, etc., during 1914.....	74,975.99
Ledger cost of bonds reduced during 1914.....	269,284.39
Paid accrued interest on securities purchased...	17,855.69
Funds on hand December 31, 1914.....	28,150,261.21
Total,	\$36,760,721.95

ASSETS

(Book Value)

Bonds and stocks owned.....	\$19,922,261.82
Loans on mortgages.....	5,765,039.38
Real Estate (Bank Building).....	250,000.00
Ground Rents.....	32,300.00
Cash in Banks.....	2,180,660.01
Total,	\$28,150,261.21

LIABILITIES

Due Depositors.....	\$25,178,814.34
Guarantee Fund.....	1,800,000.00
Undivided Surplus (Chargeable with nine months' accrued interest on deposits payable April 1, 1915).....	1,171,446.87
Total,	\$28,150,261.21

Accounts open December 31, 1913.....	45,808
Accounts opened during 1914.....	5,455
Accounts closed during 1914.....	5,758
Accounts existing December 31, 1914.....	45,505

WILLIAM M. HAYDEN, *President.*FRANK G. EVANS, *Treasurer.*

BALTIMORE, January 2, 1915.

At the request of the Board of Directors of the Eutaw Savings Bank of Baltimore, the undersigned have audited the above record of the operations of the Bank for the past year and have examined and verified its Statement of Assets and Liabilities.

JOHN R. BLAND,
(*President U. S. Fidelity & Guaranty Co.*)ALBERT D. GRAHAM,
(*Vice-President Citizens' National Bank*)ARNOLD ELZEY WATERS,
(*Townsend Scott & Son*)ROBERT D. HOPKINS,
(*President Brigham-Hopkins Co., Inc.*)WILLIAM G. BAKER, JR.,
(*Baker, Watts & Co.*)WILLIAM MARRIOTT,
(*Cashier Western National Bank*)**Mercantile Trust and
Deposit Company**

OF BALTIMORE

Statement of Financial Condition

AT THE CLOSE OF BUSINESS

DECEMBER 31, 1914**RESOURCES**

Baltimore City Stocks.....	\$2,446,701.58
Other Stocks and Bonds.....	4,498,252.53
(Market Value, \$4,571,523.33)	

LOANS ON APPROVED COLLATERAL:

Time.....	\$2,598,442.97
Call.....	2,402,664.51
Syndicate Loans.....	942,152.85
	5,943,260.33

Office Building and Lot.....	360,000.00
Open Bond Account, etc. (Secured).....	267,861.30
Cash in Hand and in Banks.....	2,295,419.48

\$15,811,495.22**LIABILITIES**

Capital Stock.....	\$1,500,000.00
Surplus.....	2,700,000.00
Undivided Profits.....	429,855.19

DEPOSITS:

Subject to Check.....	\$7,636,350.83
Time.....	3,288,373.77
In Trust.....	242,490.18
	11,167,214.78

Interest, Etc.....	14,425.25
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\$15,811,495.22

This Company has the largest capital and surplus of any financial institution in Maryland or any Southern State, and by reason of its policy of maintaining large reserves is enabled to extend accommodations to its customers at all times.

Deposit accounts solicited; 3% interest on daily balances subject to check. Special rates on time deposits.

OFFICERSA. H. S. POST, *President*WILTON SNOWDEN, *Vice-President*J. R. WALKER, *Vice-President*FRED G. BOYCE, JR., *Vice-President*JOHN MCHENRY, *Treasurer*T. H. FITCHETT, *Secretary and Asst. Treasurer*C. I. REYNOLDS, *Assistant Secretary*DOUGLAS THOMAS, *Asst. Treas. and Asst. Secy.*

Classified Opportunities

MEN WANTED

AGENTS WANTED among supply dealers and salesmen for an exceptional house-lighting machine, suitable for small homes as well as large; simple, durable, economical; satisfaction guaranteed to customers; has excellent selling points; a live proposition. Write for terms. The Alexander N. Milburn Co., Baltimore, Md.

SALESMEN WANTED. New Electric Hand Lamp; fits standard dry battery. Big opportunity; extra large profits; quickest seller ever produced. Retail to everybody from farmer to housekeeper. Dept. C, Metal Specialties Mfg. Co., Chicago.

WANTED—Experienced manager who will buy \$10,000 stock in woodworking company which has about \$60,000 invested; new, modern, well-equipped plant with good business. Address J. C. Braswell, President Rocky Mount Sash & Blind Co., Rocky Mount, N. C.

ENGINEER WANTED with manufacturing experience in cement line. If investigation is satisfactory, must invest \$2000. Good salary and large profits on investment will be paid. Address No. 1669, care Manufacturers Record, Balto., Md.

WE REQUIRE the temporary services of a capable, responsible business man with good connections, in every locality. The right man can make good money. The Dewey Drainage Excavating Company, 741 Woodward Building, Washington, D. C.

AGENCIES WANTED

WANTED—Sales agency for all lines pertaining to builders' specialties; East Tennessee as territory; can furnish satisfactory references to interested concern; modern warehouse facilities. Address Daniel Briscoe, Jr., 325-327 State St., Knoxville, Tenn.

MANUFACTURERS wishing to place their goods in Texas through salesmen covering State may submit propositions to us with all details for consideration. W. Y. Rockwell & Company, Manufacturers' Agents, Suite 712 Wilson Building, Dallas, Texas.

SPECIALTY WANTED.—Manufacturer's agent wants good specialty, selling to factories and railroads in New England. Address P. O. Box 261, Springfield, Mass.

MANUFACTURERS' Agent desires Agency for lines pertaining to builders' specialties for Grand Rapids and Western Michigan. Address Manufacturers' Agent, 643 Michigan Trust Building, Grand Rapids, Mich.

FOREIGN AGENCIES WANTED

FOREIGN REPRESENTATIVE.—35, fifteen years' experience export, traveled in Europe, United States, Latin America; command English, French, Spanish, German, Dutch; desires to represent A-1 firm, any territory. R. L., P. O. Box 443, Mobile, Ala.

SITUATIONS WANTED

EXPERIENCED OFFICE MAN desires position as office manager, secretary, treasurer, accountant or general office work; 10 years' experience in positions of these kind; now employed. Address No. 1677, care Manufacturers Record, Balto., Md.

FIRST-CLASS MAN, 15 years' experience in general contracting, capable of handling estimates and outside work, desires responsible position with contractor or architect. No. 1680, care Manufacturers Record, Balto., Md.

YOUNG CIVIL AND MECHANICAL ENGINEER is open for engagement as chief engineer, manager or assistant. Recently finished \$300,000 improvement. Address No. 1678, care Manufacturers Record, Balto., Md.

CIVIL ENGINEER open for a position with city or town as city engineer or manager; served in U. S. Engineers; municipal experience; will accept \$150 per month. No. 1674, care Manufacturers Record, Balto., Md.

ENGINEER of 30, experienced in designing, selling and constructing steam-power plants, heating and ventilating systems, refrigerating plants and automatic sprinkler systems, desires position of responsibility in the South or West. Address No. 1673, care Manufacturers Record, Balto., Md.

PLANNING-MILL SUPERINTENDENT open for position; practical, experienced and successful man in estimating, closing contracts and getting out work from blueprints; good manager and strictly sober. Address No. 1668, care Manufacturers Record, Balto., Md.

WANTED—Position as advertiser or advertising and sales manager, preferably in the North. Have had varied and extensive experience with book publisher, newspaper, farm and timber land company and advertising agency. Capable of planning advertising and sales campaigns. Will be glad to give particulars in detail to anyone interested. Address No. 1666, care Manufacturers Record, Balto., Md.

MANAGER electric plant, town about 10,000, wishes to secure position with larger corporation; work satisfactory, but wishes to advance; technical training; 6 years' experience; good references. Address No. 1666, care Manufacturers Record, Balto., Md.

RATES AND CONDITIONS

Rate 20 cents per line per insertion. Minimum space accepted, four lines. Maximum space accepted, 25 lines. In estimating the cost, allow seven words of ordinary length to a line. When the advertisement contains a number of long words, proper allowance should be made. Terms: Invariably cash with order; check, postoffice or express order or stamps accepted. No display type used. Questionable or undesirable advertisements will not be accepted. The assistance of our readers in excluding undesirable advertisements is requested. We reserve the right to refuse any advertisement. No patent medicine, whiskey or mining stock advertisements accepted. Rate for special contracts covering space used as desired within one year as follows: 100 lines, 18c. per line; 300 lines, 16c. per line; 500 lines or more, 15c. per line.

EDUCATIONAL

RENSSELAER POLYTECHNIC INSTITUTE, TROY, N. Y.—Courses in Civil, Mechanical, Electrical and Chemical Engineering and General Science, leading to the degree of Civil Engineer (C.E.), Mechanical Engineer (M.E.), Electrical Engineer (E.E.), Chemical Engineer (Ch.E.), and Bachelor of Science (B.S.). Also special courses. Splendidly equipped new engineering laboratories. Send for catalogue to Registrar.

SHEET-IRON SPECIALTIES

WANTED—Sheet-iron specialties and stampings to manufacture on contract; parts or complete. Send sample or sketch. Also have silo attractive agency proposition. C. C. Fouts Tank & Silo Co., Middletown, Ohio.

MODELS

MODELS MADE FOR INVENTORS.—General machine work. Designing and perfecting. Developing automatic devices and machinery. In a position to do all kinds of light tool and machine work. Prices reasonable. Estimates cheerfully given. Ideal Machine Works, 64 Ann Street, New York City.

BUSINESS OPPORTUNITIES

PRACTICAL MINING MAN desires to invest services and some cash with someone having a small coal proposition; several years' experience as mine foreman, mine superintendent, and mining engineering. No. 1676, care Manufacturers Record, Balto., Md.

WANTED—Party to invest \$5000 and take active part in new cotton mill. Address Box 455, Easton, Md.

FOR SALE—Water and light plant in growing town of 3000 in Southwest Ala.; will also consider selling ice plant in connection with water and light plant. Best of reasons for selling. For particulars apply to E. P. Kimbrough, Greensboro, Ala.

WANTED—To connect with individuals who will be willing to invest \$15,000 in a very successful graphite company in the best section in the South. The company is most successful in selling its product, and with additional capital can enjoy increased sales at a large profit. The best references can be given. Address P. O. Box 732, Atlanta, Ga.

FOR SALE OR LEASE—A concrete warehouse containing 3 rooms with a floor space of 6000 sq. ft., or 72,000 cu. ft. capacity; has a spur track on one side and wagon drive on the other.

Also on the same tract of land a concrete hotel of 14 rooms. This property is at Austell, Ga., the source of Bowden and Beusott Lithia Waters, on the Southern Railway, 18 miles west of Atlanta, at the junction of the Birmingham and Chattanooga Divisions. A fine chance for a man with push to make a good, easy living. Inquire of John W. Ash, 528 Temple Court, Chattanooga, Tenn.

WE ARE CONSULTING ENGINEERS backed by a competent staff and a modern machine plant that can save you money if you are interested in designing or building special machinery, special tools, experimental work, models, etc. If you have patented an article which is not perfected, a consultation with our expert mechanic is at your command. We are giving attention to developing patents and marketing patented articles, especially labor-saving appliances. Our list of office appliances is available. We invite correspondence and will give estimates promptly and cheerfully. Specialty Manufacturing-Sales Corp., Norfolk, Va.

FACTORY SITES

BALTIMORE FACTORY AND TERMINAL SITES.—Statement of Asa G. Candier, President The Coca-Cola Co.: "Investigation convinced us that Baltimore is not only the commercial metropolis for Southern trade, but that it affords shipping opportunities both by water and rail for domestic and foreign traffic superior to any of the great cities in any section of the United States." Locate in Baltimore and derive these advantages. We can provide accommodations to meet your requirements. Wm. Martien & Co., 3 N. Calvert St., Baltimore, Md.

INDUSTRIES WANTED

MISCELLANEOUS

CANNING FACTORIES, Creameries, Box and Fruit Package Factories and numerous other industries wanted along the Kansas City Southern Ry. Write Wm. Nicholson, Industrial Agt., 447 K. C. S. Bldg., Kansas City, Mo., for information regarding openings.

INDUSTRIAL PLANTS FOR SALE

MISCELLANEOUS

FOR SALE—A complete brick plant in good condition with capacity of 20,000 brick per day.
1 short log sawmill.
1 25-bbl. flour mill in brick building.
1 75-bu. corn mill in brick building.
1 corn and cob crusher.
The Flour Mill is kept going practically the year round. Price \$10,000, \$4000 cash, balance in three equal annual installments. Address Central Realty Co., Richmond, Va.

WATER FRONT PROPERTY

FOR SALE—WATER FRONT FOR BUSINESS OR MANUFACTURING PURPOSES IN JACKSONVILLE, FLORIDA.—A plot fronting 165 feet on main business thoroughfare and extending back about 800 feet to St. Johns River, containing about 3 acres, with all riparian rights. This property is right in the heart of Jacksonville, and can be bought at a reasonable price and on easy terms. For full particulars, price, etc., address Webber Building & Realty Co., 323 St. James Bldg., Jacksonville, Fla.

MINERAL AND TIMBER LANDS, WATER POWERS AND MISCELLANEOUS PROPERTIES

FOR SALE—Dividend-paying orange, grapefruit and pineapple groves, high-class town lots, town and river-front modern residences, stock farms, colonization tracts. Price \$2, \$3.50, \$5.50, \$6, \$10 and \$20 per acre. Pine, cypress, oak, gum and poplar timber tracts and timber leases and coal tracts. Write us your wants. Waters Realty Co., Walton, St. Lucie County, Florida.

WILL EXCHANGE for farm, timber, coal or large acreage the following properties:
Large apartment downtown section, rented at \$25,950 per annum. Subject to 30% incumbrance, showing a net income of \$14,925. Clear of all expenses. Price \$300,000.
Also three-story steel-constructed apartment. Subject to 33% incumbrance, showing an annual income of \$5376. Price \$60,000.
Three large apartments in Boston, Mass., one showing a gross income of \$22,176 and a net income of \$11,100. Price \$222,000. And one rented at \$11,000 per annum and showing a net income of \$3890. Price \$112,000. Also another apartment showing an income of \$10,300 per annum and a net income of \$4561. Price \$105,000. Can trade the last three properties in one deal or separate.
I have all kinds of real estate for sale or exchange everywhere. Wanted all kinds of real estate for sale or exchange.
Arthur M. Connor, 223-24 Oxford Bldg., Washington, D. C.

PEBBLE PHOSPHATE

FOR SALE—1200 acres pebble phosphate in Polk county, Florida, on R. R.; guaranteed two million tons; analysis averages 72% per cent. B. P. L. Average overburden 25 ft. A bargain if taken at once. Address Geo. C. Barton owner, Lakeland, Florida.

COAL LAND FOR SALE

FOR SALE—Cheap coal and mineral lands in Birmingham district; large and small tracts; best investments for present or future developments. S. M. Meigs, Bessemer, Ala.

COAL AND TIMBER LANDS

FOR SALE OR EXCHANGE—24,000 acres of coal and timber land, located on the Frisco R. R. west of Birmingham, Alabama. Address H. H. Wefel, Jr., owner, Mobile, Ala.

TIMBER LAND FOR SALE

4700 ACRES valuable hardwood timber land in the mountains of Southwest Virginia for sale at bargain if taken promptly. Write owner's exclusive agents, Johnson's American & Foreign Real Estate Exchange, 926 Pennsylvania Ave., Washington, D. C.

VIRGIN HARDWOOD TIMBER FOR SALE.—Along the new C. & O. Ry., in Dickenson county, Virginia, about 8000 acres finest boundary in every respect to be found in this section. Prices reasonable. Write C. O. Ramsey, Coeburn, Va.

TIMBER LANDS FOR SALE.—Have two tracts of timber land for sale, one containing about 21,000 acres, upon which there is about 90,000,000 feet of timber, situated 8 to 14 miles from station; other tract contains about 4500 acres, upon which is about 19,000,000 feet of timber, 6 to 14 miles from station. Price \$12 per acre. Write M. L. Edwards, Rutherfordton, N. C.

FOR SALE—80,000 acres virgin timber, mostly hardwood, some white pine and poplar, average 4000 to 7000 feet to acre; nearly all underlaid with coal and in the oil fields of Central Tennessee; good title. Will make extreme low price to the man with the cash. Address the owner. A. F. Williams, 166 West Adams St., Chicago.

TIMBER FOR SALE

FOR SALE—40,000,000 feet of good timber, with sawmill and complete outfit; very low freight rates to Gulf ports; very cheap and on easy terms. James A. Terry, Mobile, Ala.

FOR SALE—Nice little pine sawmill proposition of 700,000 feet near Norfolk; 6 miles R. R. If sold soon will make sacrifice. Party with small mill can clean up from \$3000 to \$4000 in 5 to 6 months if handled properly. Parties desiring such a proposition, will pay to investigate promptly. W. A. Joyner, Branchville, Va.

FOR SALE—Hardwood timber on 5000 acres of mountain land immediately on railroad; principally oak, chestnut, hemlock and poplar; pay for as cut and sold. Address North Carolina Tale & Mining Co., Hewitts, N. C.

REAL TIMBER BARGAIN.—50,000,000 ft. 70% N. C. pine, poplar and cypress, all original growth; on Southern R. R. in South Carolina. Liberal terms and low price. J. P. Mulherin (owner), Augusta, Ga.

LOGS FOR SALE

WANTED—To sell ash, sweet gum and poplar logs for veneering. J. M. Bates, Wateree, S. C.

FARM AND TIMBER LANDS

A CHOICE TRACT of 2450 acres rich bottom land with Mississippi river front; 500 acres cultivated and improved with residence, barns, tenant-houses, etc.; 1500 acres heavy timber; oak, cypress, hickory, willow, ash, cottonwood, etc.; all fine farming land; near good town and railroads. On account of financial pressure the owner offers to sacrifice at only \$10 per acre. De Soto Land Co., Baton Rouge, Louisiana.

STOCK FARM

FOR SALE AT BARGAIN—10,000 acres, located in Baldwin county, Alabama, especially adapted for stock ranch, as same is covered with a luxuriant growth of our native grasses. Terms very reasonable; in fact, would require no cash if parties buying would fence and stock same and pay me interest on the purchase price. Address H. H. Wefel, Jr., owner, Mobile, Ala.

COLONIZATION LANDS

FOR SALE ON REASONABLE TERMS—25,000 acres, located in South Alabama, especially desirable for a colonization proposition, as land begins within half mile of a very thriving town, and no portion more than four or five miles from a railroad. Address H. H. Wefel, Jr., owner, Mobile, Alabama.

NURSERY STOCK

\$10,000 WORTH OF NURSERY STOCK GIVEN AWAY.—To introduce our high-grade, true-to-name, sure-to-bear, easy-to-sell fruit trees, we are offering for sale 1000 shares of stock of \$10 each, and with each share of stock we give a bond good for \$10 in nursery stock. Applicants must be white, reliable, and owners of real estate. Write today. Willis Valley Nursery Company, 902-34 Jefferson Co. Bank Bldg., Birmingham, Ala.

FRUIT, FARM AND TRUCK LANDS

ALABAMA

GOOD INVESTMENT.—We offer for sale 13,000 acres of best farm, fruit and stock-raising land in solid body, situated only a short distance from Bay Minette in Baldwin county, Alabama.

This land lies well, being level to slightly rolling, with several streams of running water through the tract, making it very desirable for colonization purposes. This tract can be purchased for the low price of \$7 per acre. Will arrange terms. T. L. Moore & Co., Room 109 Masonic Temple, Mobile, Alabama.

BEAUTIFUL SUBURBAN HOME, 6-room house, barn, outbuildings, about 6 acres land, on street-car line; ideal for truck farm; can be bought cheap for cash. Write for particulars. M. J. Hindman, Tusculum, Ala.

Classified Opportunities

ARKANSAS

FOR EXCHANGE FOR MERCHANDISE—640-acre bottom farm, close in, clear, \$25 per acre. Leslie Land Company, Leslie, Ark.

FLORIDA

THE PALATKA FARMS COMPANY of Palatka, Florida, offers to homeseekers the very superior advantages of splendid soil, adapted to potatoes, corn and trucking, or that for oranges and grapefruit, or for combination of both, with location unsurpassed, lying along the beautiful St. Johns River, 2 miles of Palatka, an up-to-date city of 8000 population. It boasts of electric-light and gas plants, four railroads and cheap river transportation. Write for literature. P. J. Becks, Palatka, Fla.

THREE MONTHS FREE—Subscription to the Indian River Farmer. For truckers, fruit growers, general farmers, and folks who want to know about Florida. Address Indian River Farmer, Dept. "V-1," Vero, Fla.

FOR SALE—In the lake highlands of Florida, choicest lands for oranges, grapefruit, vegetables and winter homesites; location in the big lake district; high and dry; heart of the citrus belt. Land selling fast. Easy terms. Local agents wanted in each town. Address James F. Darnelle, Box 65, Fort Monroe, Va.

A CLIENT of mine, who is a big operator, owns a tract of the best citrus land in Florida. He wants some cash and is in a position to sell at a bargain price, for it was bought under its actual value, and he only asks a small profit. Chandler Campbell, Hamburg, Iowa.

FOR SALE—Water-front in small tracts on Manatee River, Florida; soil survey shows ideal citrus soil; fine home sites; boating, fishing; close to cities, Tampa Bay and Gulf resorts; flowing wells. Address Manatee River Land Co., Inc., 101½ Franklin St., Tampa, Fla.

HAVE a large tract South Florida land, splendid for colonization, in center of citrus belt, which I must sacrifice. P. O. Box 4, Gardner, Fla.

FOR SALE—Some of the best citrus lands in Florida, fast developing section, in tracts of 40 to 1000 acres. Prices \$20 to \$60 per acre. These values are without comparison. An investigation will convince you. Don't write, but come and see for yourself. J. D. Clark, owner, Bartow, Fla.

TEN AND TWENTY-ACRE TRACTS sold on long time; combination soil; orange and truck land; \$3 per acre down, \$1 per acre per month, payable quarterly; raise oranges, grapefruit, strawberries, vegetables and chickens; no tree-killing frosts; flowing wells; healthful climate year round. Write for free booklet. West Coast Realty Co., Inc., Sarasota, Florida. Dept. K.

GEORGIA

FOR SALE—An ideal place for stock farm; 2600 acres cut-over land; good pasture; plenty water; lot of cypress and second-growth pine; fine farm land if cleared; in Southeast Georgia. Address No. 1669, care Manufacturers Record, Balto., Md.

LOUISIANA

FOR SALE—A sugar plantation containing 1250 acres, 800 of which are in cultivation of cane and corn. Have 40 head of mules, implements, etc. Land contains large homes for owners, cabins, stables, barns, and everything complete for operation of one of the finest pieces of land in Louisiana. Railroad through property. For particulars relative to price and terms address No. 1679, care Manufacturers Record, Balto., Md.

160-ACRE rich Delta farm, close to city; good schools; fine neighborhood, etc.; big bargain for cash or easy terms to the right people. Investigate this. For particulars, P. O. Box 995, New Orleans, La.

MARYLAND

FOR SALE—15-acre fruit farm near Balto. City; 7-room dwelling, etc.; 2000 bearing fruit trees; 1 acre strawberries. Price \$8500. W. E. Ferguson, 217 St. Paul St., Baltimore, Md.

NORTH CAROLINA

FOR SALE—On Slocum Creek, my beautifully situated home, with 550 acres of land. An ideal place for a Northern hunting club. Come and see what there is in Eastern North Carolina. William Buys, Havelock, N. C.

TEXAS

FOR SALE—500 acres of fine valley land, never known to overflow. I want five good farmers to buy; one-third down, balance in 9-year payments at 7 per cent. Will render all assistance possible in starting buyers in the hog or dairy business. This land is located in Jim Wells county, 3½ miles from railroad, 1 mile from postoffice and school. Value \$30. Fine coat of grass and in good neighborhood. None better in the country. Address C. C. Walker, Alice, Tex.

VIRGINIA

THE best agricultural and stock farm of 2700 acres in Eastern Virginia, on navigable tidewater, including 1700 acres of fine timber; brick barns, etc. Green & Redd, Richmond, Va.

A BARGAIN—357 acres, 150 cleared; 500,000 ft. timber; land rolling, not hilly; and good, nice 11-room house and suitable outbuildings; fruit; abundant water. Only \$5500; easy terms. Southern Farm Agency, Lynchburg, Va.

DAIRY FARM FOR SALE near Gordonsville, Va.; 297 acres; new cow barn; silos; opening for dairyman; 80 miles from Richmond, 100 from Washington; good buildings; rich land; well watered. J. W. Downer, Waco, Texas.

VIRGINIA FARMS—Fine blue grass, grain and dairy farms in the heart of the Piedmont section of Virginia, Culpeper, Fauquier and adjoining counties. Ask for catalogue. The L. M. Allison Co., Real Estate Brokers, Remington, Va. Established 1895.

FINANCIAL

CAN net you 6% on your money secured by first mortgage on improved city property at 30 to 50% of its value; bank reference. A. M. Treadwell, Holston Natl. Bank Bldg., Knoxville, Tenn.

PATENTS FOR SALE

PATENT ON STALK PULLER FOR SALE—Will gladly furnish reading matter to explain. Simple and cheap, but a good proposition for the man who has the money to make them. Write R. L. Cater, Forsyth, Ga.

PATENT ATTORNEYS

EUGENE C. BROWN, ENGINEER AND PATENT LAWYER, Suite 40 Victor Building, Washington, D. C. Member Bar U. S. Supreme Court. Patents and Trademarks. Inventions are considered both from Engineering and Legal standpoints in my prosecution of patents. An experience of over 9 years as Examiner in U. S. Patent Office and over 6 years as Patent Expert in important patent suits are my special qualifications. Reports upon validity and infringement. Send sketch of invention for advice.

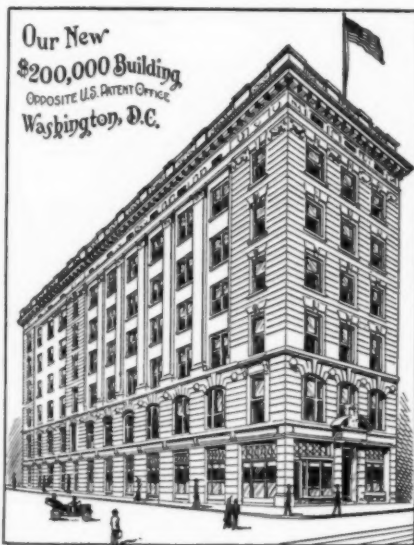
VALUABLE INVENTIONS justify only best legal service. Consult Vernon E. Hodges, Attorney-at-Law, Barrister Bldg., Washington, D. C. Practice before the U. S. Supreme Court; all Circuit Courts; Courts of the District of Columbia, and the U. S. and Foreign Patent Offices exclusively. Continuous practice since 1886. Extensive experience with all classes of invention, representing lawyers, manufacturers and inventors in every State.

PATENT YOUR IDEAS—\$9000 offered for certain inventions; book, "How to Obtain a Patent" and "What to Invent," sent free upon request; send rough sketch for free report as to patentability. We advertise your patent for sale at our expense. Chandler & Chandler, patent attorneys, 978 F St., Washington, D. C.

PATENTS secured or Fee returned. Send sketch for free report as to patentability. Guide book and what to invent, with valuable list of inventions wanted, sent free; \$1,000,000 offered for inventions. Patents secured by us advertised free in World's Progress; sample free. Victor J. Evans & Co., 12 Ninth St., Washington, D. C.

PATENTS THAT PROTECT AND PAY. Advice and books free. Highest references. Best results. Promptness assured. Send sketch or model for free search of Patent Office records. Trade-marks registered. Watson E. Coleman, Patent Lawyer, 624 F St., Washington, D. C.

PATENTS—Herbert Jenner, patent atty. and mechanical expert, 606 F St., Washington, D. C. I report free of charge if a patent can be had and its exact cost. Send for circular.



PATENTS Secured or Fee Returned

Send model or sketch for free report as to patentability. Our four books sent free to any address:

How To Obtain Patent, with one hundred mechanical movements. **What To Invent**, with valuable **List Of Inventions Wanted**.

One Million Dollars Offered for Inventions. List of Patent Buyers and Fortunes in Patents. Patents secured by us advertised

FREE

WANTED NEW IDEAS

Send for **LIST OF PATENT BUYERS** who consult us when purchasing patents. Contains requests from **MANUFACTURERS, MAIL ORDER HOUSES AND PROMOTERS** for patents secured by us, and suggestions as to New Ideas they wish to purchase. We invite manufacturers and promoters to address our Sales Department regarding the purchase or leasing of a number of meritorious patents secured by us.

VICTOR J. EVANS & CO.

749 Ninth Street, WASHINGTON, D. C.

We have recently secured the following patents. A copy of any of these patents will be forwarded upon receipt of ten cents. Address all communications to Sales Dept., Victor J. Evans & Co., Washington, D. C.

Neal Lawson, lifeboat.
Jacob Schlosser, door hanger.
Herman Smeds, non-refillable bottle.
Charles C. Fisher and Hubert H. Rountrey, air-cooled rabble arm.
Wm. C. Fritschle, combined closure and retaining device.
Lawrence A. Avera, spring.
Alonza M. Hatfield, gasoline level indicator.
Walter B. Price, airbrake.
Henry D. Plunkett, baling press.
John C. Nichols, horse collar.
Gottlieb Muchelisen, dam.
John A. McDonald, leveling clock shelf.
James T. Germany, beehive candy board.
Francis M. Gigan and Harry E. Dugman, safety car coupling.
J. Frank Dwiggs, soda fountain mixer.
James M. Canfield, trestle bracket.
Wm. T. Gallagher, swinging scaffold.
Damase J. Cote, case clip.
John Klein, balancing table.
Wm. G. Legg, bedspring.
Wm. R. Whitney, valve.
Chester A. Pierce, address pad.
Milton S. Haselton, collapsible crane.
Lewis B. Arthur, internal combustion engine.
Millard Morris, aeroplane safety device.
Mott A. Russell, police nipper.
Lorenzo Swenson, adjustable castor.
Felix Valliere, harness hame.
Julius S. Southard, door hinge.
Elmer E. Stoner, ice cutter.
Charles L. Settergren, grinding machine.

Fred M. Swart, bit.
Sylvester Q. Harper, guano distributor.
Percy H. Eaton, lock nut.
Charles Kleckner, rocking-chair attachment.
Meyer Siegel, cloth-cutting machine.
Harry G. Hoffman and George C. Easten, suitcase alarm.
Edmund F. Piper, cylinder for threshing and other machines.
Frank Huston, box lid holder.
Wm. W. Jones, automatic train stop.
Wm. S. Easton, water motor.
Carl T. Schaefer, street-car switch operator.
Alfred Manuel, collapsible crate.
Amos B. Buchner and Harvey S. Keck, sod and clod pulverizer.
Omer E. Boone, exerciser.
Elbert H. Beers, stocking.
David R. Toiin, railroad nut lock.
Adelbert L. Traver, trimming and cleaning machine.
Arthur F. Girndt, cuticle implement.
Edwin A. Hart and Robert H. Wallace, floor construction.
Cuse B. Vince, rail joint.
Vernice Miller, horseshoe calk.
Robert Sutherland, rail chair.
Winfield Ripley, teething ring.
Edward Simmons and Warren G. Day, anti-skidding device.
Charles E. Rogers, singletree clip.
Wilhelm Teg, dustless ash sifter.
Martin E. Thomas, train-stopping apparatus.

Henry B. Stollings, trap.
Fred C. Sauls, shade guide.
Wm. E. Tichborne, drinking cup.
Wm. H. Higginson, hay rake.
Frank L. Parker, rerailing device.
James A. Burden, plow.
John O. Longan, steam engine slide valve.
Laurie C. Ransen, train stopping and signaling system.
Rev. John O. Levison, concrete construction.
James W. Weekly, neck yoke safety holder.
James A. Gray, train-stopping apparatus.
Daniel V. Guiles, floor drain.
Lee J. Prehl, vehicle tender.
James K. Dalton, air pump.
Donald McLure, saw set.
Frank Burgner and Jasper Burch, self-locking clevis.
Lewis C. Knackstedt, musical instrument.
Charles Lenox, cotton chopper.
Harry O. Kenworthy, can opener and seals.
James R. Humphries, window.
Ira W. Downey, printing slugs and means for making the same.
Ed Engle, railroad switch.
William H. White, sand trap.
Henry Feltz, anti-slipping device.
Adolph Schreck, trap.
Wm. H. Anderson, farm gate.
Emanuel Rothschild, checkbook.
Robert G. Stiles, retort.
Bernard S. Stone, valve.
Seth Merriam Stowell, spoke auger.
Joseph A. Hammer, hanger.

Wm. H. Reid and Charles L. Reid, self-dumping barge.
Jesse E. Griffith, grain shocking machine.
Murray L. Gordon, automatic headlight control.
Harry C. Brooks, pruning shears.
Adna F. Blanchard, lamp.
Magdalena Diener and Charles F. Urban, mono-runner coasting sleigh.
Wm. W. and James W. Gourlay, carriage lifter for linotype machine.
John V. Down, detachable lamp extinguisher.
Ira W. McDaniel, device for dispensing towels.
Franz Krause, sled.
Jeremiah D. Hull, non-refillable bottle.
Joseph C. Holzhauser and Martin S. Kenney, coffee substitute and process of making same.
Wm. F. Fletcher, drilling machine.
Wm. W. Watson, composition.
Alton R. Turner, tail-gate fastener.
Guy E. Davidson, spark arrester.
Walter Eggers, trolley for electric car.
George Farstad and Emil Paulsen, furnace regulator.
Patrick J. Clifford, train-stopping apparatus.
Edwin G. Adams, traction gear.
Archie W. Bailey, tongue truck.
Alice A. Beeks, brush.
Royal E. Benson, combination surface gage.
Gustaf A. Bjornson, rotary reversible engine.

PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS

GOVERNMENT PROPOSALS

PROPOSALS FOR CAST-IRON LAMP-Posts and Porcelain Receptacles and Lamp Sockets for same, Electric Cable, Steel Cable, Steel Pipe and Pontons for same, Cast-iron Washers, Stovepipe, Garbage Cans, Buckets, Anchors, Brass Bolts and Washers, Door Bolts, Power Hack Saw, Anchor Lights, Cheesecloth, Sash Cord, Chalk Line, Twine, Rubber Bands, Bristol Board, Pad Board, Manganese Dioxide, and Potassium Chlorate. Sealed proposals will be received at the office of the General Purchasing Officer, The Panama Canal, Washington, D. C., until 10.30 A. M. January 21, 1915, at which time they will be opened in public, for furnishing the above-mentioned articles. Blanks and general information relating to this Circular (No. 890) may be obtained from this office or the offices of the Assistant Purchasing Agents, 24 State Street, New York City; 614 Whitney-Central Building, New Orleans, La., and 1086 North Point Street, San Francisco, Cal.; also from the U. S. Engineer Offices in the following cities: Seattle, Wash.; Los Angeles, Cal.; Baltimore, Md.; Philadelphia, Pa.; Pittsburgh, Pa.; Boston, Mass.; Buffalo, N. Y.; Cleveland, Ohio; Cincinnati, Ohio; Chicago, Ill.; St. Louis, Mo.; Detroit, Mich.; Milwaukee, Wis.; St. Paul, Minn.; Chattanooga, Tenn.; Louisville, Ky.; Mobile, Ala., and Galveston, Tex.; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash. F. C. Rogers, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

POSTOFFICE DEPARTMENT, Washington, Nov. 24, 1914. Sealed proposals will be received at the office of the Purchasing Agent for this Department until 2 o'clock P. M. February 2, 1915, for furnishing envelopes for the Departments of the Government during the four years beginning July 1, 1915. Blanks for proposals, with specifications and instructions to bidders, will be furnished upon application to the Purchasing Agent, A. S. BURLESON, Postmaster-General.

BOND OFFERINGS

Road Bonds

Sealed proposals will be received up to 10 o'clock A. M. Wednesday, January 13, 1915, for the purchase of all or any part of \$75,000 of Road District No. One of West Baton Rouge Parish serial coupon bonds, dated January 1, 1915, bearing 5 per cent. interest, payable semi-annually. Bonds of \$500 denomination and maturing in from 1 to 21 years. Deposit required with proposal, 2½ per cent. of purchase price. No bid for less than par and accrued interest will be entertained. Full information furnished on application. F. J. WHITEHEAD, Secretary Police Jury, Port Allen, Louisiana.

Notice to Contractors and Bond Buyers

Greenville, Tex. The Board of Permanent Road Commissioners of Road District No. One, Hunt County, Texas, will on January 27, 1915, in the City of Greenville, Texas, consider proposals for the construction of a system of improved highways in said District. Plans, specifications and other information will be on file after January 11, 1915, in the office of Julian C. Feld, Consulting Engineer, Denton and Greenville, Texas, and with W. M. Henly, Secretary of the Board, Greenville, Texas. Funds available approximately \$400,000. Bidding check required, five per cent. (5%) of bid. At the same time and at the same place the Commissioners' Court of Hunt County, Texas, will receive proposals for the sale of \$400,000 in five per cent. (5%) semi-annual Road District No. 1, Hunt County, Texas, road bonds. The right to accept or reject any or all proposals is reserved. W. M. HENLY, Sec'y Board of Permanent Road Commissioners, Road Dist. No. 1, Hunt County, Texas, and Auditor for Hunt County, Texas.

\$30,000 Road Bonds

The State of Texas, }
County of Matagorda. }

Bay City, Tex.

Notice is hereby given that on the 11th day of January, 1915, \$30,000 worth of Road Bonds of Road District No. 6 of Matagorda County will be sold in the office of County Judge, Bay City, Matagorda County, Texas, said bonds bearing interest at the rate of 5½ per cent., payable semi-annually, interest payable on the 10th day of April and October of each year, bonds payable at the Seaboard National Bank of New York, N. Y. One per cent. of bond issue is required by certified check, evidencing good faith of any and all bidders on said bond issue.

Bids will be received up to 10 o'clock A. M. January 11, 1915. The total valuation of property in said district is one million dollars. The last assessed valuation of said district was \$700,930. The total number of acres in said district is 26,671.

Witness my hand this 14th day of December, 1914.
R. R. LEWIS,
County Judge, Matagorda County, Texas.

\$10,000 6% Certificates

Bids will be received until January 21, 1915, for \$10,000 6 per cent. first mortgage sidewalk improvement certificates. Payable 1, 2, 3 and 4 years from date of issue. For further particulars address
EPLEY CONSTRUCTION CO.,
Hattiesburg, Miss.

\$150,000 5% Bonds

Daytona, Fla. Bids will be received by the Board of Public Works for \$150,000 5 per cent. 40-year sewerage and drainage bonds, until 3 o'clock P. M. January 21, 1915. Interest payable semi-annually in New York or in Daytona. A certified check for 3 per cent. of the amount of proposed purchase must accompany bids. Privilege is reserved to reject any and all bids. Address
E. M. CONNIT, Secretary.

PAVING AND GOOD ROADS

State Highway

STATE OF MARYLAND,
STATE ROADS COMMISSION,
601 Garrett Building,
Baltimore, Md.

NOTICE TO CONTRACTORS.

Sealed proposals for building 5 sections of State Highway, aggregating about 10.56 miles in length, as follows:

Contract No. G-8—GARRETT COUNTY: One section of road through Grantsville, about .85 mile in length. (Macadam or Concrete.)

Contract No. P-12—PRINCE GEORGE'S COUNTY: One section of road from Meadows to Camp Spring, about 3.03 miles in length. (Macadam or Concrete.)

Contract No. P-14: One section of road from Upper Marlboro to Hills Bridge, about 2.45 miles in length. (Macadam or Concrete.)

Contract No. Q-12—QUEEN ANNE'S COUNTY: One section of road through the town of Church Hill, about .55 miles in length. (Macadam or Concrete.)

Contract No. S. M. 9—ST. MARY'S COUNTY: One section of road from Ridge to the Confederate Monument, about 3.58 miles in length. (4" Gravel Surfacing.)

Will be received by the State Roads Commission at its offices, 601 Garrett Building, Baltimore, Md., until 12 M. on the 19th day of January, 1915, at which time and place they will be publicly opened and read.

Bids must be made upon the blank form contained in the book of specifications. Specifications and plans will be furnished by the Commission upon application and cash payment of \$1 for each contract, as hereinafter no charges will be permitted.

No bid will be received unless accompanied by a certified check for the sum of five hundred (\$500) dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

By order of the State Roads Commission, this 23rd day of December, 1914.

O. E. WELLER, Chairman.

WM. L. MARCY, Secretary.

Paving and Bridge Construction

STATE OF MARYLAND,
STATE ROADS COMMISSION.

NOTICE TO CONTRACTORS.

Sealed proposals, as follows:

Contract No. Bc-17-Sec. 6, BALTIMORE CITY—

Approximately 1.50 miles of Sheet asphalt paving for Hanover Street Bridge and approaches.

Contract No. Bc-17-Secs. 7 and 8, BALTIMORE CITY—

One (1) reinforced concrete bridge (16-30' and 1-32') spans, girder construction.
One (1) reinforced concrete bridge (7-15') spans, girder construction.

Will be received by the State Roads Commission at its offices, 601 Garrett Building, Baltimore, Maryland, until 12 M. on the 19th day of January, 1915, at which time and place they will be publicly opened and read.

Bids must be made upon the blank form contained in the book of specifications. Specifications and plans will be furnished by the Commission upon application and cash payment of \$1, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of five hundred (\$500) dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

By order of the State Roads Commission this 4th day of January, 1915.

O. E. WELLER, Chairman.

WM. L. MARCY, Secretary.

WATERWORKS AND SEWERS

Water and Sewerage Extensions

COLUMBIA, S. C.

Sealed proposals will be received by the Commissioners of the City of Columbia, S. C., until 10 A. M. January 29, 1915, for extensions to the water and sewerage systems.

The work will consist of approximately ten miles of water mains, ranging in size from 6" to 12", and ten miles of sewer mains from 8" to 15".

Specifications, form of proposal and contract and plans may be seen at the office of the Engineer-Superintendent after January 9, or will be mailed upon application to the Engineer, accompanied by the payment of five dollars for the specifications and form of proposal and contract, and five dollars for the plans, which payments will be refunded upon the return of the same in good condition within ten days after the letting. The right is reserved to reject any or all bids.

F. C. WYSE, Engineer-Superintendent.

E. M. DuPRE, Council Superintendent.

Water-Works Materials

NOTICE.

The City of Sweetwater, Texas, will consider proposals at 2 P. M. of January 20, 1915, for the purchase of the following materials: 50 fire hydrants, 6" inlet, one 4" outlet, two 2½" outlets, 6-foot barrel, automatic drain, and working pressure of 125 lbs. per sq. inch.

60 iron body, hub ends, gate valves in sizes ranging from 4" to 12", with working pressure of 125 lbs. per sq. inch.

½ dozen blow-off valves for 12" line, with working pressure of 60 lbs. per sq. inch.

½ dozen automatic air escapes for same line.

1500 18" extension service boxes.

1500 water meters.

1500 Mueller corporation cocks in sizes from ½" to 1".

1500 wiped joint 18" goosenecks connections from ½" to 1".

Above are approximate quantities required, and the city reserves the right to purchase more or less as desired, or to reject all proposals.

Dealers in these materials are invited to submit data and prices on or before the above-mentioned date.

GEO. T. WILSON, Mayor, Sweetwater, Texas.

Water-Works Equipment

Eastover, S. C.

Bids will be received until January 18, 1915, for one hemispherical tank and tower, one engine, power head, water pipe and appurtenances.

Sealed bids will be received by the Board of Public Works of the Town of Eastover until 2 o'clock P. M. January 18, 1915, for the following material, etc.:

One steel hemispherical bottom water tank with plate roof and six-inch brass expansion joint. Capacity 25,000 gallons.

One eighty-foot steel tower with 24" metal balcony and metal ladder.

Two 12 H. P. throttling governor kerosene engine, geared base, with deep-well working head.

Water Pipe.

Approximate:

400 L. ft. 8" A class C. I. Pipe or Matheson Lock Joint.

1520 L. ft. 6" A class C. I. Pipe or M. L. J.

150 ft. 4" A class C. I. Pipe or M. L. J.

2625 ft. 2" Gal. I. Pipe or M. L. J.

2000 ft. 1" Gal. I.

One 8" 2-way 26" Bury Hydrant.

Six 6" 2-way 26" Bury Hydrants.

One 4" 2-way 26" Bury Hydrant.

One 8" Gate Valve and Valve Boxes.

Five 6" Gate Valves and Valve Boxes.

One 4" Gate Valve and Valve Boxes.

Ten 2" Gate Valves and Valve Boxes.

Four 1" Gate Valves and Valve Boxes.

Five 2"x2" Gal. Tees.

100 2"x3" Gal. I. Tees.

20 1"x2" Gal. I. Tees.

3 8"x8" C. I. Tees.

1 4x6 C. I. Tees.

1 4x4 C. I. Tees.

5 6" C. I. Plugs.

2 4" C. I. Plugs.

100 ¾" Screw Plugs.

50 ¾" Street Elbs.

Each bid must be accompanied by a certified check, drawn to the order of the Board of Public Works of the Town of Eastover, S. C., to an amount of 2½ per cent. (2½%) of the amount of bid. All material will be paid for cash and must be satisfactory to the Engineer. Plans and specifications may be obtained at the office of E. N. Chisolm, Jr., C. E., Room 29 Clark Law Bldg., Columbia, S. C., upon payment of \$3. The right is reserved to reject any and all bids.

J. A. BYRD,

H. G. RATES,

S. W. McKENSIE,

H. W. KING,

Clerk Board of Public Works.

E. N. CHISOLM, Jr., Engr.

W. H. MILLER, Asso.

MISCELLANEOUS

Steel Stand Pipe

NOTICE.

The City of Sweetwater, Texas, will consider proposals at 2 P. M. of January 20, 1915, for furnishing and erecting a 250,000-gallon capacity cylindrical steel standpipe, 28 in diameter and 60' high. Concrete base will be constructed by the city. Manufacturers are invited to submit plans, specifications and prices on or before the above date.

GEO. T. WILSON, Mayor, Sweetwater, Texas.

Gravity Conduit

NOTICE TO CONTRACTORS.

The City of Sweetwater, Texas, will open bids at 2 P. M. on January 20, 1915, for the construction of a 12" diameter cast-iron gravity conduit from Lake Trammel to Sweetwater, a distance of 6½ miles. Engineer's estimate of cost is \$16,000, not including pipe, which has been purchased by the city.

Plans and specifications are on file in the office of the City Secretary. A deposit of \$15 will be required to guarantee the return of same in good condition.

The city reserves the right to reject any or all bids.

W. H. BARTLETT, City Secretary, Sweetwater, Texas.

Proposals for Dredging in the Harbor of Baltimore

DEPARTMENT OF PUBLIC IMPROVEMENTS.

SUBDEPARTMENT HARBOR BOARD, BALTIMORE, MD.

Proposals for dredging the main channel north from Lazaretto Light to the piers of the Transatlantic Liners, all as shown on plans, will be received until 11 o'clock forenoon of Wednesday, January 20, 1915.

Proposals must be addressed to the Board of Awards and sent to the City Register's Office, City Hall, accompanied by a certified check of the bidder for \$2000, drawn on a Clearing-house bank and payable to the Mayor and City Council of Baltimore.

The right is reserved to reject any or all proposals. Bond in the amount of the contract price will be required for the proper performance of the contract.

Approximate quantity of material to be dredged is 2,000,000 cubic yards.

O. F. LACKEY, Harbor Engineer.

Approved: JOHN HUBERT,

Acting President Board of Awards.

Plans and specifications can be obtained at the office of the Harbor Engineer, City Hall, Baltimore, Md.

Earth Levee

Sealed proposals, addressed to the City Council of Augusta, Georgia, will be received by the River and Canal Commission at its office, 747 Broad Street, Augusta, Ga., at 12 o'clock on Tuesday, January 19, for furnishing all labor and outfit and constructing section No. 4 of the earth levee at Augusta, Ga., requiring 250,000 cubic yards of earth fill and 30,000 cubic yards of excavation.

This will be scraper or wagon work. Also at the same time and place bids will be received for the construction of:

960 lineal feet of reinforced concrete box sewer 7 feet by 4½ feet.

420 lineal feet of 48-inch brick sewer.

530 lineal feet of 42-inch brick sewer.

760 lineal feet of 36-inch brick sewer.

330 lineal feet of 24-inch pipe sewer.

Certified check for \$300 will be required with each bid.

The city reserves the right to reject any and all bids.

A bond will be required from the successful bidder.

Plans and specifications can be had on application to the undersigned.

NIBBET WINGFIELD, Chief Engineer.

747 Broad Street, Augusta, Ga.

Bids for Removal and Disposal of Dead Animals

Sealed proposals will be received by the Committee on Public Works of the Board of Bond Trustees of the City of Jacksonville until 8 o'clock P. M. on Monday, January 11, 1915, for the removal and disposal of dead animals and refuse from the markets in such manner, to be clearly defined by the bidder in his proposal, as to be least offensive to the citizens of the city. The successful bidder will be required to give a surety bond acceptable to the Committee, payable to the City, in the sum of \$1000, guaranteeing the faithful performance of the contract, and a certified check in the sum of \$500, payable to S. C. Harrison, Jr., Chairman, must accompany each bid as a guarantee that the bidder will, if awarded the contract, promptly enter into agreement to do the work and furnish the required bond. For further information, if desired, apply to L. D. Smoot, Commissioner of Public Works, Jacksonville, Florida. Envelopes containing bids should be so marked and should be addressed to the Chairman of the Committee. The Committee reserves the right to reject any or all bids.

S. C. HARRISON, JR., Chairman, Committee on Public Works.

December 12, 1914.

Impressive Facts About Southern Wealth

The other day we had a visit from the representative of an important New Jersey house. During the conversation it developed that his call was the result of study which he had been giving a card containing certain figures from a back issue of the MANUFACTURERS RECORD.

He subscribed for the paper, ordered it sent to his home address. Said that he got a different viewpoint there, could look at things in a more leisurely manner and consider more effectively the business suggestions contained in the MANUFACTURERS RECORD and the ideas brought out in editorials and articles.

The figures which he had seen were impressive, but they would have meant nothing unless he had been the sort of a man that approaches any kind of a problem with an open mind. Figures mean nothing in themselves, he knew that—they must be studied and digested.

DO YOU KNOW

That the aggregate value of the corn and wheat crops of the South is within a few thousand dollars of the value of the 1913 cotton crop, with seed?

DO YOU KNOW

That last year the South had among its farm products

970,994,000 bushels of corn	35,638,000 bushels of Irish potatoes
166,225,000 bushels of wheat	23,673,000 bushels of rice
87,900,000 bushels of apples	8,441,000 tons of hay
50,532,000 bushels of sweet potatoes	736,542,000 pounds of tobacco

DO YOU KNOW

That the value of its diversified agricultural products is over \$2,500,000,000 a year, or two and a half times as great as the most valuable cotton crop it ever produced?

DO YOU KNOW

That the value of its output of factories, forests and minerals is over \$5,000,000,000 a year, or \$1,500,000,000 more than its agricultural output, and that the total of all its products is \$8,600,000,000 a year?

DO YOU KNOW

That the value of the South's mineral output of \$470,000,000 is greater than the value of the mineral output of the United States twenty years ago, or in 1893?

DO YOU KNOW

That the MANUFACTURERS RECORD has published from January to December, 1914, nearly 60,000 items relative to industrial developments, building operations, financial and railroad matters in the South and Southwest?

If you have an open mind, if you are susceptible to influence, you *must* be impressed by figures like these, and if you don't read the MANUFACTURERS RECORD regularly you must realize that you are missing something of real value, that you are working with insufficient knowledge.

There isn't a man anywhere, North or South, who can't study with profit the facts and figures presented from week to week in the MANUFACTURERS RECORD. If you are living in the South you must read it if you would consider yourself a well-informed business man, alive to the opportunities of the South and in close touch with the problems of the hour having a vital bearing upon your own business questions. If you live elsewhere you cannot be expected to form an impartial, intelligent judgment of Southern material affairs unless you avail yourself of the best means at your disposal.

The MANUFACTURERS RECORD is the industrial encyclopedia of the South. You cannot, perhaps, read it through from cover to cover every week, but on every page you will find matter of vital interest to you if intelligently studied.

You cannot be thoroughly informed about the South and Southwest unless you read the MANUFACTURERS RECORD. You need it. The price is \$4.00 a year, but we offer for a limited time three years' subscription for \$8.00, or two years' for \$6.00.

Why not be far-sighted? *Subscribe now.*

INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers whether they are advertisers or subscribers or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

Estimating on the Deshler Hotel.

George Mould, of the estimating department of Charles T. Wills, Inc., builder, 286-288 Fifth Ave., New York, announces his company is figuring on the erection of the 12-story Deshler Hotel at Columbus, O. Holabird & Roche, Monroe Bldg., Chicago, are the architects for the Deshler Hotel.

Wallin & Young Dissolves Partnership.

The firm of Wallin & Young, architects, of Savannah, Ga., has dissolved partnership by mutual consent, and the business of the concern will be taken over by Henrik Wallin. Mr. Wallin will continue to occupy the suite of offices formerly used by the firm in the Hull Bldg., 23 Abercorn St., Savannah.

Hirsch Electric Mine Lamps.

In emphasizing the safety features of the Hirsch electric cap lamps used by miners, the Hirsch Electric Mine Lamp Co. of Philadelphia reports that in a recent Alabama mining accident two electric cap lamps which were in the midst of the explosion came out burning and uninjured, and in the rescue work miners equipped with the Hirsch lamp were able to immediately enter the danger zone, resulting in the saving of eight lives or more. The electric cap lamp, it is

claimed, cannot be extinguished by the after-damp, and, therefore, they enable the wearer to light his way out much quicker and also rescue men who are overcome by gas.

Reorganization of Erie Pump & Engine Works.

A reorganization and consolidation of the Erie Pump & Engine Works, pump and engine builders, and the Northern Equipment Co., manufacturer of the Copes boiler-feed regulators and governors, both of Erie, Pa., has been effected, the new combination being known as the Erie Pump & Equipment Co. The officers of the Erie Pump & Equipment Co. are E. W. Nick, president and treasurer; D. H. DuMond, vice-president, and V. V. Veenschoten, secretary.

The Maryland-Newfoundland Syndicate, Inc.

Organization of the Maryland-Newfoundland Syndicate, Inc., of Hagerstown, Md., with S. W. Sowers president, A. R. McNitt vice-president, H. E. Bester treasurer, and J. B. Ferguson secretary, has been effected to take over important slate deposits and other mineral properties acquired in Newfoundland during the past year, and reported on for this syndicate by Edwin C. Eckel, geologist and mining engineer, Washington,

D. C., assisted by Dr. J. S. Grasty, University, Va. The slate properties, which aggregate 4000 acres, comprising deposits of dense, hard slate, well suited both for roofing and mill stock, are located immediately on deep water, and are said to require practically no stripping. Both green and red slates are found on the properties, and the green slate is reported to be probably the largest deposit of that color known in the world.

Gifford-Wood Company Opens New York Office.

Under the management of A. W. Berghoefer, assisted by Joseph A. Boucher, the Gifford-Wood Company, engineers, founders and machinists, of Hudson, N. Y., have opened offices in the Hudson Terminal Bldg., 30 Church St., New York city. The territory embraced by the New York office includes New York city, New Jersey, southeastern part of Connecticut and Pennsylvania, and the Southern States east of the Blue Ridge Mountains.

Dust Collecting Machinery Installations.

F. E. King Company, 119-23 25th street, Norfolk, Va., manufacturer of shaving, dust and lint-handling systems, has installed recently several complete slow-speed low-power dust-collecting systems, among which is the equipment for the Virginia Manufacturing Co.'s new plant in Suffolk, Va.; one for the Shaw Land & Timber Co. of Ivor, Va.; two systems for the Stave & Timber Corporation of New York city for its new fireproof factories in Norfolk; also a system requiring eight large and several small dust collectors used in the handling of peanuts for Bosman-Lohman Company of Norfolk.

Wants to Represent Manufacturers.

A manufacturers' agency, representing mine, mill, furnace and electrical machinery and supplies, has been established at Birmingham, Ala., by John S. Jemison, who recently disposed of his interest in the McClary-Jemison Machinery Co. of that city. Mr. Jemison states he would like to receive catalogues and correspond with manufacturers seeking representation in the South. In entering his subscription to the Manufacturers Record he writes: "Your paper has been of incalculable value to me during the time I have been in business, and I would not consider being without it."

Dodge Sales & Engineering Co. Incorporated.

For the purpose of securing better efficiency and better service to the manufacturing interests at large, the Dodge Sales & Engineering Co. of Mishawaka, Ind., has just been organized and incorporated to distribute all the products of the Dodge Manufacturing Co. in the United States and abroad, together with engineering connected with sales. The Dodge Sales & Engineering Co. takes over the present sales and engineering departments of the Dodge Manufacturing Co., warehouses, and branch sales and engineering stations at Chicago, Minneapolis, St. Louis, Atlanta, Cincinnati, Pittsburgh, Philadelphia, Boston, New York, Dallas and Indianapolis. Under the new arrangement the Dodge Manufacturing Co. expects to devote its entire time and energy to the manufacture of power transmission machinery and appliances, elevating and conveying equipment, water softeners, etc., and to the design and production of other lines kindred thereto. Duncan J. Campbell,

Boilers for Quick Sale

Two 50 H. P. Standard Horizontal Tubular Boilers with Steam Domes. Suitable for power or heating. Warranted in good condition. Will sell at bargain on terms to suit responsible purchaser. Address

Box 456, Shawnee, Okla.

FOR SALE

Together or in single items, the machinery, power and all appointments of this complete plant in perfect running order for manufacture of showcases, fixtures and specialties. Details promptly furnished. Address

GLOBE FIXTURE & FURNITURE CO.
221 Main Street Quincy, Ill.



Cut annual fuse maintenance 80% and secure positive electrical protection under all conditions.

ECONOMY RENEWABLE CARTRIDGE FUSES

When an Economy fuse blows, you don't throw it away—you simply insert a new renewal element and have virtually a new fuse. 25 blowouts of an ordinary non-refillable fuse (100 Amps., 250 Volts) cost \$10.12½, while 25 blowouts of an ECONOMY renewable cartridge FUSE of the same capacity cost \$2.10—and remember Economy fuses give absolute protection—they do not vent fire nor hold a sustained arc. They are the only renewable fuses uniformly rated. Economy fuses meet the performance specifications governing the use of such devices.



Why spend four times more than necessary in fuse maintenance? Write today for Bulletin M. R.—and list of prominent satisfied users.

Two renewal elements furnished free with each Economy fuse. Figure the saving yourself.

Economy Fuse & Mfg. Co. Kinzie and Orleans Sts.
CHICAGO

Kinzie and Orleans Sts.
CHICAGO



Managing the Business of 8,500,000 Telephones

Imagine a manufacturing business having millions of customers scattered over the country, with millions of accounts on its books, most of them less than \$30 a year, and including a multitude of 5-cent charges.

Consider it as having shops and offices in thousands of cities, and reaching with its output 70,000 places, more than there are post offices in the United States. Think of the task of patrolling 16,000,000 miles of connecting highways constantly in use.

This gives you a faint idea of the business of managing the Bell System.

Not all the 8,500,000 telephones are in use at once, but the management must have facilities always adequate to any demands for instant, direct communication.

In so vast an undertaking, every branch of the organization must work in harmony, guided by one policy. The entire plant must be managed in the light of accumulated experience, and with the most careful business judgment.

The aim of the Bell System is to make the telephone of the utmost usefulness. This requires an army of loyal men and women, inspired by a leadership having a high sense of its obligations to the public.

Animated by the spirit of service, and unhampered by red tape, the 150,000 Bell employees have the courage to do the right thing at the right time upon their own initiative. They work together intelligently as a business democracy to give the public good service.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy

One System

Universal Service

for many years general sales manager of the old company, goes to the new corporation as vice-president and general manager, taking with him the general sales department at Mishawaka and the entire branch house organization. For the present at least there will be no change in the personnel. C. R. Trowbridge, who has been associated with Mr. Campbell for a number of years, continues in charge of advertising and sales promotion, with offices in the Mishawaka Trust Bldg., Mishawaka. While there has been some talk of moving the general offices to Chicago, for the present at least they will remain at Mishawaka, which has been the home of the Dodge Manufacturing Co. for thirty-one years.

Increased Business Activity.

One of the enterprising concerns of the famous "factory colony" of Oakley, a thriving manufacturing suburb of Cincinnati, O., which reports business activity and predicts better business for 1915 is the H. L. Brown Fence & Manufacturing Co., manufacturer of ornamental woven-wire lawn fence, tree guards, flower-bed borders and other artistic designs for the lawn. The company states its plant is running full time with an enlarged management to take care of the increased volume of business. A special designing engineer has recently been employed by the company to improve the machinery and put in additional machines which will enable it to turn out the best ornamental woven-wire fence especially desirable to the jobbing trade, particularly to those where artistic design and high-grade goods are an object. The plant will handle its entire output through the wholesale hardware jobbers.

Multiple Tie Plate and Safety Spike.

Recent tests made with 85-pound rails applied with multiple tie plates and safety spikes, manufactured by the Railway Safety Spike Co. of Richmond, Va., are claimed to have clearly shown the advantage to be gained by using this method of attaching rails firmly to cross-ties. The drop-forged process, low carbon steel safety spike is made with projecting wings on each side of the body extending about 1½ inches below the head, the lower part of the body being notched front and back; the notches, it is

claimed, engage the fiber of the wood and prevent the spike from working up, increasing the life of the tie, due to the fact that the spike does not work up under the wave motion of the rail. The multiple tie plate, which was designed to be used in connection with the safety spike, is so constructed that it can be used with five different sections of rails, fitting rails of varying weights and eliminating the necessity of carrying different sized tie plates.

TRADE LITERATURE.

Thor Electric Drills.

Circular "E-2", describing and illustrating Thor portable electric drills, has recently been issued by the Independent Pneumatic Tool Co., Thor Bldg., Chicago, manufacturer of Thor air and electric drills, reaming, tapping and wood-boring machines, pneumatic riveting and beading hammers, grinders, etc. The drills, which are made in five sizes, with the smallest having a steel drilling capacity of ¼ inch and the largest size ¾ inch, are equipped with universal alternating or direct current motors, with optional breast plate, grip handle or screw-feed attachments.

Sauerman Dragline Cableway Excavator.

A circular describing and illustrating the Sauerman Type "A" drag-line excavator has been issued by Sauerman Bros., engineers and manufacturers of power scrapers, wire rope, rope blocks and wire-rope appliances, 1139-41 Monadnock Block, Chicago. This machine, which is of the incline slack line gravity type cableway, is said to be designed to meet the demand for a simple and efficient means for digging material either from under water or from a dry pit. It is claimed to be especially adapted for stripping overburden from sand and gravel pits, clay pits, rock quarries, etc., digging, conveying and dumping the material excavated in one operation.

1915 Calendars.

A large and beautiful calendar for 1915, containing a reproduction of the original painting "Beatrice" by Angelo Asti, is being distributed by the Standard Portland Cement Co. of Birmingham, Ala. The calendar

proper contains figures that are clear and large, and for convenience in office use, calendars of the preceding month and a month in advance are placed on the sheet showing the present month's calendar. Other 1915 calendars are being distributed by the following companies: Lockwood, Greene & Co., architects and engineers, Boston; O. J. Maigne Co., printing rollers, 1017 Sansom St., Philadelphia; India Alkali Works, India Wharf, Boston, manufacturer of cleaning powders; the Youngstown Sheet & Tube Co., Youngstown, O.; Universal Portland Cement Co., Chicago; the National Ammonia Co., St. Louis, and the Security Bank Note Co. of Philadelphia has issued a large daily date calendar pad for 1915.

"Dependable Highways" for December.

"Dependable Highways," published by the National Paving Brick Manufacturers' Association, Engineering Bldg., Cleveland, O., contains in its December issue, among other interesting articles, a discussion of the street-improvement law of Indiana, description and illustrations of the brick pavements of Bucyrus, O., and the new brick roadway from East Aurora to Buffalo, N. Y. What brick-road experience has taught the State of Ohio, by John Laylin, division engineer of the State Highway Department; description of the scientific road-assessment system as used in the State of Oregon, report on the Chicago Road Congress recently held in Chicago, and announcement of the meeting of the Board of Directors of the National Paving Brick Manufacturers' Association, which will be held 10 A. M. February 15, 1915, at the new Statler Hotel, Detroit, Mich., are also given in this issue.

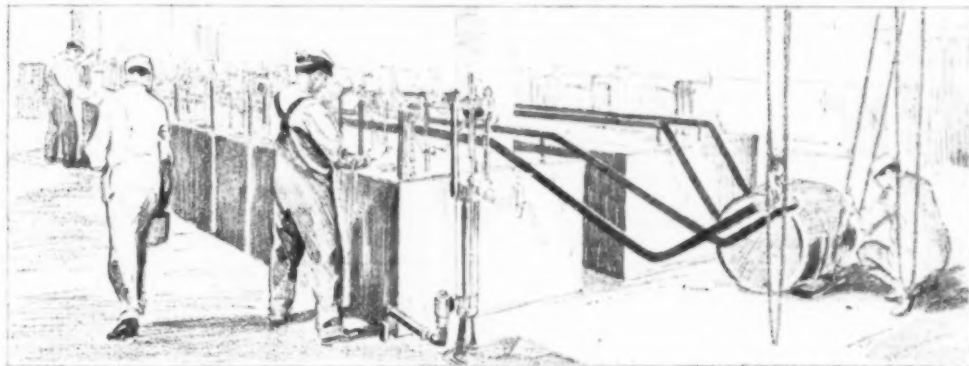
Comprehensive Pumping Machinery Catalogue.

A new and general catalogue, comprising Bulletin No. 105 and Bulletin No. 109, describing and illustrating boiler-feed pumps and centrifugal pumps of all styles, has been issued for 1915 by the Epping-Carpenter Pump Co. of Pittsburgh, Pa. Bulletin No. 105 is devoted exclusively to boiler-feed pumps and contains lists of various types and styles suitable for feeding batteries of boilers up to 12,000 horse-power, for all pressures met with in present-day practice and

for operation with saturated or superheated steam, as may be required. The illustrations are numerous, and through their use, in connection with detailed descriptions, the company has aimed to afford prospective customers a clear idea of the design and construction of each type and style as well as size listed. Simple duplex piston pattern and center packed plunger pattern, compound duplex center packed plunger type, simple and compound pressure pattern, and automatic feed pumps and receivers are among the boiler-feed pumps illustrated in the catalogue. Illustrations and description of Epping-Carpenter's comprehensive lines of centrifugal pumps, including horizontal double-suction volute, horizontal double-suction impeller multi-stage, and single-suction impeller multi-stage centrifugal pumps of all sizes, together with sectional views and detailed description of their construction, are contained in the catalogue under Bulletin No. 109.

Fuel Oil-Driven Air Compressors.

Descriptions and illustrations of "Chicago Pneumatic" fuel-oil engine-driven compressors and their application to the unit system of air-power plants are given in Bulletin No. 34-K, issued by the Chicago Pneumatic Tool Co., Fisher Bldg., Chicago, and New York offices, 50 Church street. Class "N-80" compressors, described in the bulletin, operate on practically all low-grade distillates, and are made in four standard strokes, 8, 10, 12 and 14 inches, with air and power cylinders of different capacities, speeds and general dimensions, arranged for portable or stationary use. Briefly described, the power ends of these machines are of the valveless, two-cycle, low-compression type, operating without electrical firing devices and having fuel injection and water supply to the combustion chamber simply and positively governed. Reliability, sustained low operating costs, portability, indestructible flat disc air valves, totally enclosed construction and efficient automatic lubrication and regulation of these compressors are some of the advantageous features claimed by the Chicago Pneumatic Tool Co. for its Class "N-80" fuel-oil engine-driven compressors. General dimension and vertical and horizontal types of air receiver tables are included in the bulletin.



Lubrication Efficiency

Buy on the Basis of Specified Quality and Analysis

The simplest method of avoiding troubles in lubrication is to divest oil buying of all mystery and put it on a basis of plain business by having us as disinterested lubrication engineers draw specifications which describe exactly the kinds of oil you should buy to fulfill each particular requirement. You then buy these oils in the open market at the market price. We test deliveries and reject any lubricants which do not meet the specifications. The specifications will be drawn by experienced specialists after careful study of your individual requirements. By this method you order exactly what is best for your needs, and pay only for what you get, namely, good lubrication at the lowest market prices.

In some cases we are able to effect large savings simply by devising more efficient methods of oil storage and distribution.

Every detail connected with the purchase and use of lubricants is within our scope.

Yet lubrication efficiency goes far deeper than the use of high-grade oils, safe storage and proper distribution. It means a thorough knowledge of the bearings and other frictional surfaces on which the lubricants are used, for you cannot afford to skimp on oil to the detriment of far more costly equipment.

This organization is rendering invaluable service to manufacturers through its large corps of technically-trained specialists and its extensive equipment. Inspections, Analyses, Physical and Electrical tests and expert advice on the purchase and utilization of materials are a few of the many ways in which we are able to render service directed toward greater efficiency and the highest economy.

ARTHUR D. LITTLE, Inc., Chemists, Engineers, Managers, BOSTON, MASS.

Special Advertisements of General Interest.

Your chance to open up a new market for your goods in SOUTH AMERICA

If interested, write at once to

FRIEDR. W. LUTZ

RICHMOND, VA.

Personal Representatives in Brazil and the Argentine Republic.

FOR RENT WITH POWER

64 Crompton & Knowles Looms, 82-inch reed space, 4x4 box, 25 harness. Also dressing and winding for same; room 60x20.

BELLEVUE WORSTED MILLS
GERMANTOWN PHILADELPHIA, PA.

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Export and Import Merchant
145 Harrison Road CALCUTTA, INDIA

Late Sole Agent of several Austrian and German manufacturers, open to represent American manufacturers of all types of goods—glass wares, piece goods, textiles, woolens, stores, papers, machinery of all types, etc., and act as buying agent for all kinds of Indian produce—jutes, bags, husks, mica, myrabolium, etc., etc.

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offer their services to all American firms desirous of introducing their products into south Brazil.

Information given concerning banking facilities, customs duties, transportation and packing. Translation and distribution of trade literature. Correspondence solicited. Send us your samples and catalogues, your prices and discounts. A B C Code. Personal reference, F. L. Petty, 1522 Michigan Boulevard Bldg., Chicago.

ICE PLANT For Sale

Ice plant, 25-ton absorption machine. Capacity could be increased to 30 tons easily. Concrete building, fireproof. Fine water supply; very economical. Completed eighteen months. Situated on Florida coast; fine harbor; railroad to interior; several towns on Bay. Accessible to quantities of fish. Opportunity for greater development of fish business. Splendid chance for investment. Good reason for selling. Terms if desired.

A. C. SMITH

Care Manufacturers Record, Balto., Md.

SANTA ANNA, TEXAS

Has the most complete natural-gas system in the entire Southwest. Splendid water system. Glass sand assaying 99.53% silica. The best limestone in the State. Fire and brick shales. Large and splendid agricultural trade territory. Oil and gas field developing. Large distributing territory. We invite capital to fully investigate our opportunities.

FRED W. TURNER, Sec., Santa Anna Commercial Club

CASKS FOR SALE

Heavy, well-made iron-bound casks, 42" diameter middle, 38" diameter ends, 42" high, 1 1/2" thick, in sound condition, with both heads in. Sold singly or in car lots.

N. & G. TAYLOR CO.

Third and Chestnut Sts. Philadelphia, Pa.

Modern Electric Light, Waterworks and Ice Plant For Sale

Located in a live town in Alabama, about 2500 population, Queen & Crescent Railroad tracks running directly by plant. Good artesian water supply.

A bargain on easy terms to an experienced man with a few thousand dollars. Full particulars, write

WILLIAM SEARS, Pres., Eutaw, Alabama

WIRE ROPE

We have accumulated a stock of wire rope that we offer at bargain prices. The lengths run from 60 to 3000 feet, from 3/8 to 1 1/2 inches diameter. These are new ropes and perfectly good for a variety of purposes, but are of construction different from our regular stock ropes. It will pay you to get a list of these with our prices.

Broderick & Bascom Rope Co.

805 N. Main St. ST. LOUIS, MO.

Bargains in Machinery and Supplies.

Steam and Electric Machinery CORLISS ENGINES

Compound: 32 & 62x60 Allis H. C. C.—26 & 54x60 Allis H. T. C.—22 & 44x48 Monarch.—18 & 32x42 Allis.—14 & 28x36 L. & B. H. C. C. Simple: 36x72 Prov.—28x48 Allis. Vilter.—24x48 Ham. & Allis.—22x42 Hamilton.—18x36 Nagle.—16x42 St. Louis.—16x32 F. & S.—14x36 St. Louis. Murray, R. & F.—13x36 Quincy.—12x36 S. B. R.—12x30 St. Louis.

BOILERS

2 180 H. P. Heine, 125 lbs. pressure.
2 250 H. P. Heine, 150 lbs. pressure.
3 300 H. P. Heine, 150 lbs. pressure.
3 300 H. P. Sterling, 150 lbs. pressure.
3 300 H. P. Edgemoor, 175 lbs. pressure.
3 350 H. P. Heine, 200 lbs. marine casing.
3 350 H. P. Heine, 150 lbs. pressure.
2 350 H. P. Sterling, 150 lbs. pressure.
508 H. P. B. & W., 175 lbs. pressure.

A. C. UNITS 3 PHASE 60 CYCLES

K.W. Make. Volts. Rev. Engine.
90 G. E. 2300 120-H.P. Diesel Oil Eng.
150 We. El. 2300-225 15x21 Erie City Eng.
200 Allis 2300-150 16x36 Allis Corliss.
250 Ft. Way. 2300-225 300-H.P. R. McReh Gas.
300 Westg. 440 300-H.P. Westg. St. Turb.
4 400 Westg. 2300-440 300-H.P. Westg. St. Turb.
400 G. E. 2300-120 McR. & S. Vert. C. C.
3 500 Westg. 2300-440 300-H.P. Westg. St. Turb.
750 G. E. 2300 K. & K. Comp. Cor.
1000 Westg. Any 1800 Low-pressure Turb.
1000 G. E. Any 1800 Mix. pressure, Curtis.
2 1000 Westg. Any 1800-H.P. Westg. St. Turb.

D. C. UNITS—250 Volts 125

K.W. Make. Volts. Engine.
1000 We. El. 230 30 & 60x48 F. & S. V. C. C. Cor.
400 Ft. Way. 250 24x27 Buckeye R. H.
350 C. W. 250 Simple Buckeye Eng.
300 Westg. 3-Wire 19 & 32x24 Ridgely H. C. C. Cor.
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100 Westg. 3-Wire 12 & 20x16 Ridgely T. C.

Send for Complete List.

Harold R. Wilson Machinery Co.

419 Pine St. Other Sizes St. Louis, Mo.

Like New for Service

1 24"x30" Blandy Slide-Valve Engine...\$1250.00
1 24x30" Filer & Stowell Engine... 1250.00
1 No. 3 Wickes Sash Gang... 1250.00
2 125 H. P. 100-lb. H. A. Boilers, each... 400.00
2 125 H. P. 125-lb. H. A. Boilers, each... 450.00
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1 150 H. P. 125-lb. H. A. Boiler... 500.00
\$400,000.00 worth of good machinery of all kinds at wrecking prices. We buy, sell, exchange, repair, rebuild and appraise.

SOUTHERN MACHINERY EXCHANGE

Bisbee Bldg. Jacksonville, Fla.

FOR SALE

1 36-ton Heisler Geared Locomotive, built in 1913, in first-class condition.
1 30-ton H. K. Porter Mogul Locomotive.
1 18-ton Climax Locomotive.
20 Logging Cars, 40,000 lbs. capacity.
14 miles 25 and 35 lbs. Relay Rails.
110 tons Scrap Rails.
Located on New Orleans, Mobile & Chicago R. R.

HOWZE LUMBER CO., Inc., Mobile, Ala.

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No. XB-16. 4 1/2"x6" American D. C. S. D. Hoist, with boiler.
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No. XB-18. 40 H. P. Pierce Gasoline Engine.
No. XB-19. 50 H. P. Nash Gasoline Engine.
No. XB-20. 18 1/2"x12"x10" Worthington Duplex Pump.
No. XB-22. 3"x12" Steam Pile Driver.
No. XB-23. 100 Pes. 12" 40-lb. U. S. Sheet Steel Piling.
No. XB-24. 25 Pes. 24" 80-lb. "I" Beams, 30'-40'.
No. XB-25. 100 Steel 1-side 3/4-yd. Dump Cars.
No. XB-26. 50 Steel 2-side 3/4-yd. Dump Cars.
Write for Free Complete List No. XB-213.

Harris Brothers Company, Owners
CHICAGO HOUSE WRECKING CO.
35th and Iron Sts. CHICAGO, ILL.

REBUILT LEATHER BELTING

Half the price, equal new in service, excellent appearance, all sizes, satisfaction guaranteed. Also new, 25 per cent. under dealers' prices. Canvas and rubber belting.

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ST. LOUIS, MO.

Please mention Manufacturers Record.

MOTORS AND DYNAMOS

5 7 1/2 H. P. Wagner, 220 V., 1100 R. P. M., \$75.00
3 4 H. P. Interpole, 500 V., 1500 R. P. M., 60.00
2 15 H. P. C. & C., 500 V., 950 R. P. M., 140.00
2 25 H. P. Fairbanks, 3-ph., 60-cycle, 220 V., 1200 R. P. M., 200.00

All machines are complete and fully guaranteed. Write for our monthly Bargain Sheet.

PAN ELECTRIC MFG. CO., 735 S. Fourth St., ST. LOUIS

Bargains in Rebuilt Boilers, Engines, Locomotives, Etc.
1 25 H. P. Rebuilt Fire Box Boiler, price \$200.
1 each 40, 60 and 80 H. P. Rebuilt Fire Box Boilers, with fittings, at a bargain.
1 each 60, 80 and 100 H. P. Horizontal Tubular Boilers.

1 each 6, 8 and 10 H. P. Vertical Boilers, complete.
2 16 H. P. Hoisting Engines, double drums, with boilers.
1 25 H. P. Hoisting Engine, single drum.
1 50 H. P. Gas Engine (used four months).
1 10' dia. Mine Ventilating Fan, with engine.
1 10-ton "Baldwin" Saddle Tank Locomotive, 44" gauge.

1 30-ton "Climax" Geared Logging Locomotive, 3' gauge.
1 each 6, 8 and 10' Electric Mine Ventilating Fans (Thayer Pat.).
The above must be sold without reference to cost. Write us.

SOUTH SIDE FOUNDRY & MACH. WORKS
Charleston, West Virginia

Direct Current Dynamo and Switchboard FOR SALE

One Westinghouse Dynamo, 1100 R. P. M., 12 1/2 K. W., 500 lights, 125 volts, with pulley, slide rails, slate switchboard, ampere meter, volt meter, circuit breaker, field rheostat, main switch and 4 circuit switches. Condition perfect and price low.

HOLMES ELECTRIC COMPANY
16 Market Place Baltimore, Md.

YOU CAN SAVE 50%

IN THE PURCHASE OF ALL APPARATUS SPECIALS

400 K. W. Westinghouse-Parsons 60-cycle, 2 or 3-phase, 440-volt, with condenser.
300 H. P. Smith, type E, Gas Producer Plant, complete.

PAUL STEWART & CO. CINCINNATI, O.

AT A BARGAIN

3 Lidgerwood Hoisting Engines, cylinders 8 1/2"x10, D. D., D. C., first-class condition.

1 Wetherall Twin Corliss Engine cylinders 20x42, first-class condition.

2 5" Worthington Turbine Pumps, D. C. to 85 H. P. motors.

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Buy, Sell and Exchange Machinery of All Kinds

WRITE US YOUR WANTS

Ice Machine For Sale

For Sale—One 10-ton "American" Ice Machine in good working order. Will sell cheap account of putting in larger machine. Address

MASCOUTAH BREWING CO.

MASCOUTAH, ILL.

PRICED FOR QUICK SALE

A Famous 11 H. P. Monitor Gasoline Engine

Mounted on steel beam trucks, with tongue, neck yoke and doubletrees, with batteries and coil-water cooled—6"x8" cylinder, mechanically operated valves, tapered and ground valve cages—no gaskets—with 16"x6" friction clutch pulley—weight complete 3600 pounds.

For - - - - \$318.00

F. O. B. Wheeling.

The addition of kerosene attachment, Elkhart magneto and other similar improvements on full line of Monitor engines accounts for this low price—new in every respect—fully guaranteed—reasonable trial to responsible parties.

Better wire your order. Other good values in Cook, Fairbanks-Morse, Novo and Bull Dog engines in certain sizes.

Wheeling Mold & Foundry Co.

WHEELING, W. VA.

NEW LEATHER BELTING

At a Saving of 40% Over Usual Prices

We have a special lot of new double leather belt of some of the best makes, including Fayerweather & Ladew, which, owing to its being stock worn, and in some instances remnants from manufacturers' sales, can be offered at the low prices enumerated below. This, in view of the sharp rise in belting prices, should interest every being buyer. In case we do not have the width you desire, but have something that can be cut down, this will be done free of charge, as will joining to make a continuous length.

45' 3/4"	.....	\$ .09 per foot
250' 1"	.....	.12 per foot
53' 1 1/2"	.....	.18 per foot
50' 2"	.....	.24 per foot
35' 2 1/2"	.....	.30 per foot
25' 2 3/4"	.....	.33 per foot
25' 3"	.....	.36 per foot
1500' 3 1/2"	.....	.42 per foot
65' 3 3/4"	.....	.45 per foot
400' 4"	.....	.48 per foot
525' 4 1/2"	.....	.54 per foot
525' 5"	.....	.60 per foot
220' 5 1/2"	.....	.66 per foot
30' 8 1/2"	.....	1.02 per foot
45' 14"	.....	1.68 per foot

We also have in stock a considerable quantity of new and second-hand single and double leather belting at special prices. If you need belting, do not fail to send us a list of your requirements. We will send you samples and quotations.

L. F. SEYFERT'S SONS, Inc.

437 North Third Street PHILADELPHIA

240-volt Direct Current Generators

FOR SALE

K.W.	Speed.
1 50 Westinghouse, type S, belted.....	350
1 75 Allis-Chalmers, belted.....	400
1 100 General Electric, belted.....	600
1 100 Crocker-Wheeler, direct con. to Ideal engine.....	250
1 125 Allis-Chalmers, 6-pole.....	525
1 150 Western Elec., 3-bearing.....	500
1 150 Willey, direct con. to Atlas engine.....	225
1 240 Crocker-Wheeler, MP, direct connected to cross-compound Vilter-Corliss engine.....	120

Send for our Monthly Bargain Sheet showing net prices.

GREGORY ELECTRIC CO.

16th and Lincoln Sts. CHICAGO, ILL.

Generators and Engines

For Sale—Two Single-phase G. E. Generators, 120 K. V. A., 2300 volts, belted to two Harrisburg 4-valve engines; also, switchboard, steam piping and accessories, and three 150 H. P. return tubular boilers. This equipment can be seen in operation at the Washington, N. C., Electric-Light Plant, and additional information with prices obtained from

H. B. CHARLES, Supt.

Washington, N. C.

MACHINERY FOR SALE

One 100 K. W. Western Electric 250-volt D. C. 600 R. P. M. Generator, \$500. One 75 K. W. National Electric 250-volt D. C. 750 R. P. M. Generator, \$350. Two complete panels for above at a low price. One Erie-Rail 14x14 250 R. P. M. 140 H. P. Engine, \$325.

JANESVILLE ELECTRIC CO.

Janesville, Wis.

Bargains in Machinery and Supplies.

In replacing our manufacturing equipment we find the following first-class

Used Machine Tools

which we offer at attractive prices

18"x6" Reed.
17"x8" Gray.
20"x8" Lodge & Shipley, Q. C. G.
20"x10" Lodge & Shipley, Q. C. G.
20"x12" Lodge & Shipley, Q. C. G.
24"x8" Lodge & Shipley, Q. C. G.

SPECIAL LATHES

No. 3 Lodge & Shipley Rapid Reduction Lathe.
24"x7" Lodge & Shipley Chucking Lathe.
14"x6" Towsley Speed Lathe.
18"x8" Lodge & Shipley Single Pulley Driven Lathe.

METAL SAWS

Globe Power Hack Saw, 8" capacity.

MISCELLANEOUS MACHINES

One Marion Double Grinder.
One Marion Double Grinder on stand.
One Diamond Combination Grinding and Polishing Stand on column.
One Sturtevant Blower, diameter of outlet 24".
One "Ohio Planer," 24"x24"x12", with two heads on cross rail.
Universal Swivel Table for Radial Drill.
Brown & Sharp Grindstone Frame for 5"x26" stone.
One Mueller Grindstone Frame for 4"x27" stone.
One 12"x40" Mumford Molding Machine.
Write for complete description with prices of machines in which you are interested.

The Lodge & Shipley Machine Tool Co.

CINCINNATI, OHIO

FOR SALE

Alternating Current Generators

DIRECT CONNECTED TO GAS ENGINES

2 80 K. W. each 3-phase 60-cycle 220-volt Alternators, direct connected to Westinghouse Vertical 3-cylinder Gas Engines.

1 100 K. W. 60-cycle 3-phase 220-volt Alternator, direct connected to Duplex Tandem Alberger Gas Engine.

These outfits are in first-class operating condition and will be sold very cheap to quick buyers before we remove them to our warehouse in Chicago.

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1 20" Carrey Hand Jointer.....\$100.00
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Boilers, Stationary Engines, Hoisting Engines, Pumps, new and second-hand, every size and for every duty.

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50 H. P. Aills-Chalmers, 3-phase, new, 850 R. P. M., complete..... 300.00
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35 H. P. G. E., 3-phase, 850 R. P. M., complete..... 215.00
35 H. P. Westinghouse, 2-phase, 1140 R. P. M., complete..... 300.00
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30 K. W. Eddy to New York safety engine, 120 volts..... 500.00
Large stock of smaller motors and dynamos, both A. C. and D. C. Let us have your requirements.

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Motor-Driven Centrifugal Pump, 250 gals. per min. against a 225-ft. head, practically new, at half price. Will equip with any style motor desired.
Electrical apparatus of all kinds at lowest prices.

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Naturally prices will advance with the increased demand. Why not take advantage of the prices we are now quoting.

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Two 350 H. P. Sterling Water Tube, 150 lbs. steam working pressure.
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SPECIAL: 36"x72"x72" Bass Cross Compound, 3000 H. P.

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150 K. W. 250-volt D. C. Crocker-Wheeler, with Wright Horizontal Tandem Compound 14½"-24"x16" Engine.
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Motors, direct and alternating current, all sizes from 1 to 100 H. P., in stock for immediate delivery.
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Released by Pennsylvania R. R.

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90 and 100 lb., all with Fish Plates.

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Splice Bars for any section rail in stock.

Frogs, Switches, Bolts, Nuts, Spikes, and all Track Accessories.

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With Splice Bars, Bolts,

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OUR SQUARE DEALINGS WILL WARRANT YOUR CONTINUED PATRONAGE.

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LOCOMOTIVES, STEAM SHOVELS and RAILS

We have at our shops in Birmingham, thoroughly overhauled, 48 standard and 7 gauge Locomotives.

Also, 10 Marion and Thew Shovels.

Also, 3000 tons of Relaying Rails, all weights. Write us for prices and terms.

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10-34' 60,000 cap. Cars, Steel Trucks, overhauled.

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About 700 tons, 56 lbs. per yard, with plates.
About 43 tons, 58 lbs. per yard, with plates.
About 600 tons, 60 lbs. per yard, with plates.
About 800 tons, 67 lbs. per yard, with plates.

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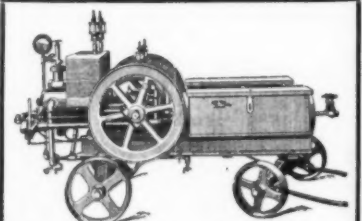
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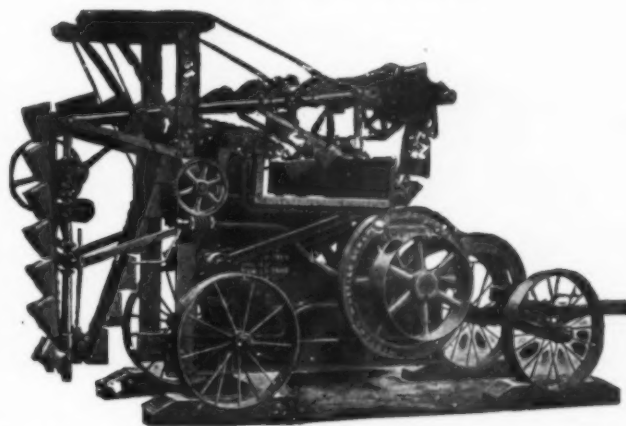
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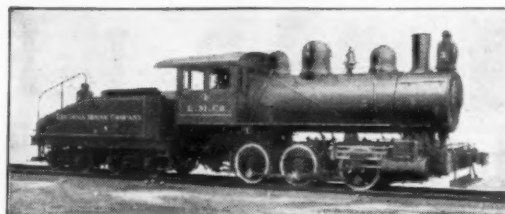
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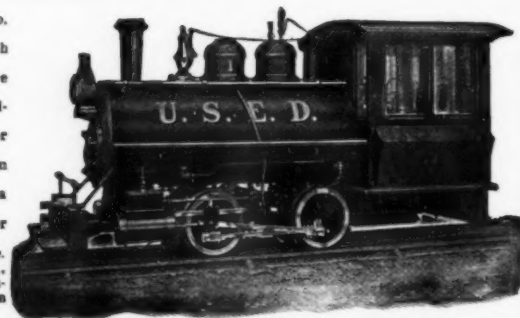
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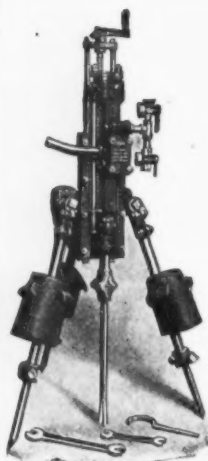
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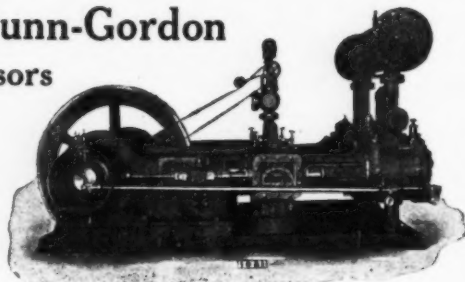
International Steam Pump Co.
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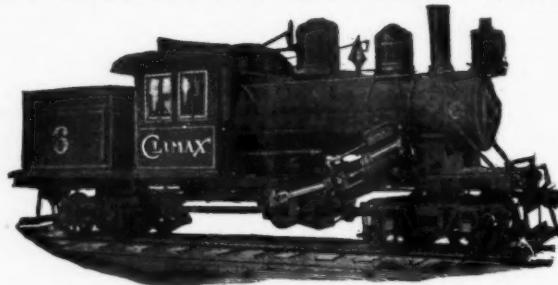
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WE have been appointed Southern Agents for the Austin Improved Cube Mixer made by the Municipal Engineering and Contracting Co., Chicago, and the "Forced-Feed" Road Crusher and other products of the Wheeling Mold and Foundry Co., Wheeling, W. Va. Both of the lines are so well known that they do not require any special introduction. We feel, however, that it is fitting to mention that after the most thorough test 108 Austin Cube Mixers were used with wonderful success at the Panama Canal.

MANY of the most prominent Contractors and Highway Officials use and specify Wheeling Machinery, knowing about its efficiency and economy from past records.

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We will gladly send catalogs or give any information on these lines.

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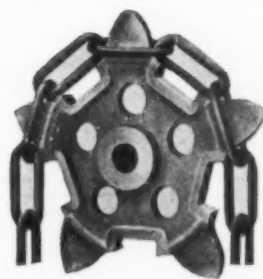
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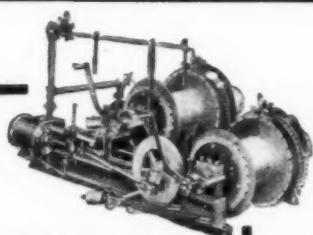
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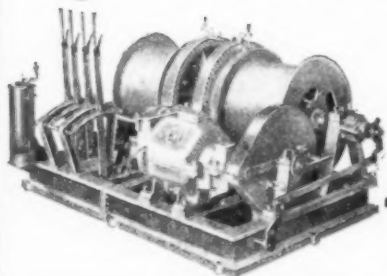
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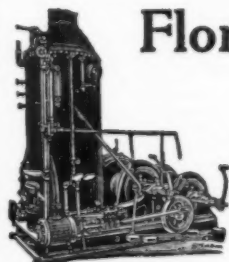


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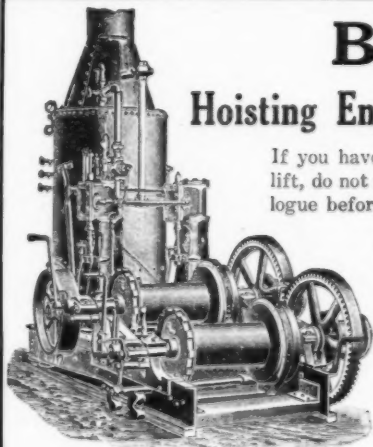
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For Contractors, Bridge Building, Dredging, Cableways and General Hoisting Duty.

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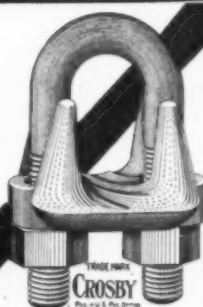
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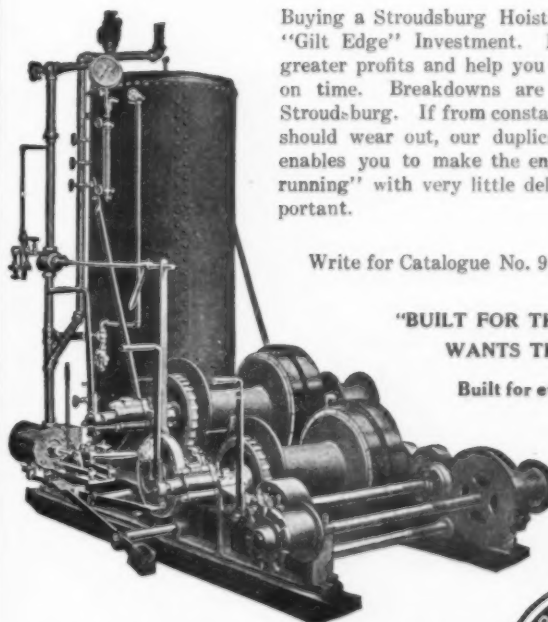
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A MESSAGE FROM THE FAR WEST

The bucket shown above is one of eight WILLIAMS BUCKETS purchased and operated by The Columbia Digger Co., Portland, Ore. This bucket is digging a canal through a sand bar on the Columbia River at Rooster Rock. The material handled was a mixture of sand and clay, and they handled

2500 Yards Per Day of Ten Hours. Can You Beat It?

Williams buckets for every service, over 200 different sizes and types made. We can satisfy you if you will give us the opportunity.

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HAYWARD DRAG SCRAPER BUCKETS are used for certain kinds of digging; the ORANGE PEEL covers a wider field of usefulness, while the CLAM SHELLS are generally used for rehandling, although when fitted with teeth we recommend them in some cases for digging. Then there is the

HAYWARD ELECTRIC MOTOR BUCKET, used principally in foundries and around shops.

If you contemplate digging canals or irrigating ditches, dredging or the handling of any materials, look into the new Class "B" Hayward Skid Excavators before deciding on the plant you will use. These machines are light and will work over soft ground, and may be mounted on wheels, if desired, at a slight addition in cost.

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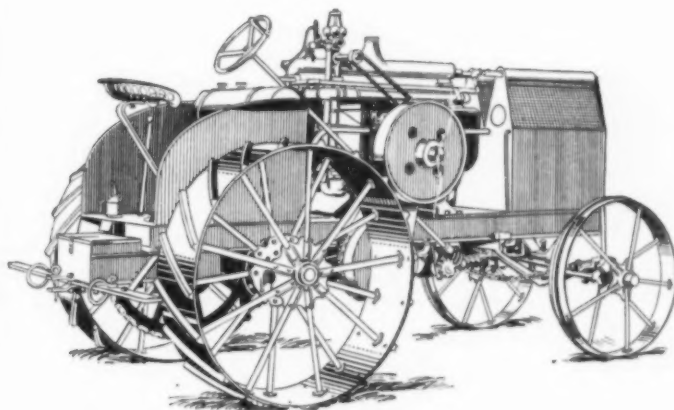
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Here is the suitable power for the man with the small farm, quarter section or so. For all your general operations, you will find that it will fill the bill. It has two cylinder opposed motor, and chain drive. Uses either gasoline or kerosene as fuel, and is regularly equipped for both.

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THEW Shovels

Move more material, more difficult material, or the same amount at lower cost than any other shovels of equal weight and dipper capacity

Many features contribute to the more speedy and economical operation of THEW Shovels, but two stand out most prominently—the **Patented Horizontal Crowding Motion** and the **Full Circle Swing**.

The Horizontal Crowding Motion eliminates the straining, downward push on the dipper handle, that wastes power on other shovels. It enables the cleaning up of an absolutely level floor around the machine. Whether working up or down-grade this dipper motion is always parallel to the working floor. Changes in grade are easily effected by proper manipulation of this motion. Cuts as shallow as 12 inches, are handled economically.

The Full Circle Swing is a feature that enables **THEW Shovels** to deliver excavated material at any desired point. This gives Thew Shovels an extraordinary advantage over others for small contracts.

Labor is reduced to a minimum by the ease of operation of Thew Shovels. The dipper does not have to be adjusted vertically for every motion, so that no cranesman is necessary. THEW Shovels are always operated by one man, who at all times has an unobstructed view of the dipper, enabling him to handle the machine in the most effective manner. The number of pitmen required is reduced to a minimum. These features in conjunction with proved power economy and reduced fuel consumption have established the "THEW" as the leading contractors' shovel on excavations calling for daily outputs of one-thousand cubic yards or under.



Type O Thew with Jack Knife Boom, owned by the West Const. Co., Chattanooga, Tenn., on street grading.



Type O Electric Shovel owned by The United Railways Co., St. Louis, Mo., on double track work.

Perhaps you think you can not use a steam shovel on your work to advantage, but remember that **The THEW** has shown its economy and efficiency on other contracts where the ordinary steam shovel could not have been advantageously employed. It will pay you to investigate the THEW carefully and promptly. The THEW experts will give you complete information gratis.



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The Thew Automatic Shovel Company, Lorain, Ohio



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For Better Road Work



Can be operated by one man. Swings in a complete circle. Invaluable for road and street grading and all classes of excavating. Built strong and for continuous work. Used and endorsed by contractors the world over.

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American Steel Dredges

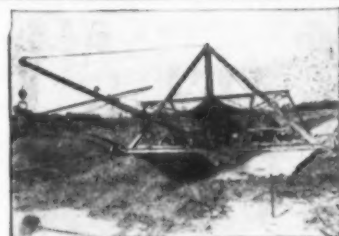


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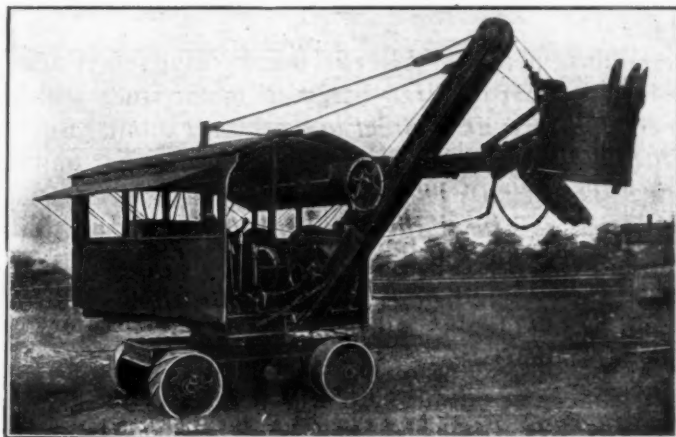
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The original and only strictly one-man shovel manufactured. Operated by internal combustion gasoline engine, thus dispensing with fireman and expenses incident to fuel and water hauling necessary with steam operated shovels.

Mounted on special wide traction wheels, thus dispensing with laying of track and men in pits.

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Built in standard traction and full circle revolving.

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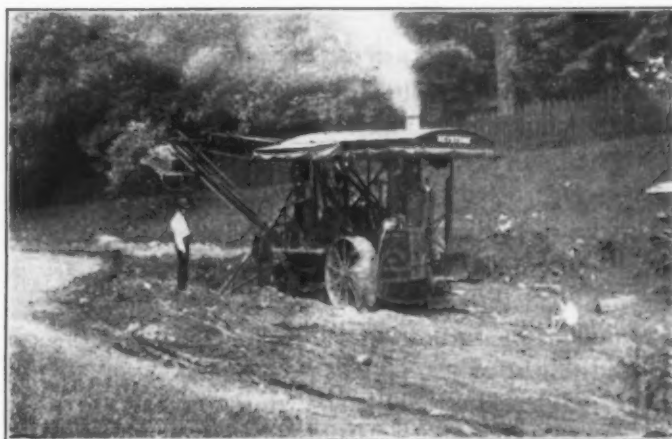
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A Light, General Utility Steam Shovel for Contractors' Use



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This portable machine can be used with three kinds of scoops—adapting it to practically every grading and excavating job in the contracting field; the Skimmer Scoop for street grading; the Dipper Scoop for side hill embankments; the Ditcher Scoop for trenches, irrigation ditches, etc.

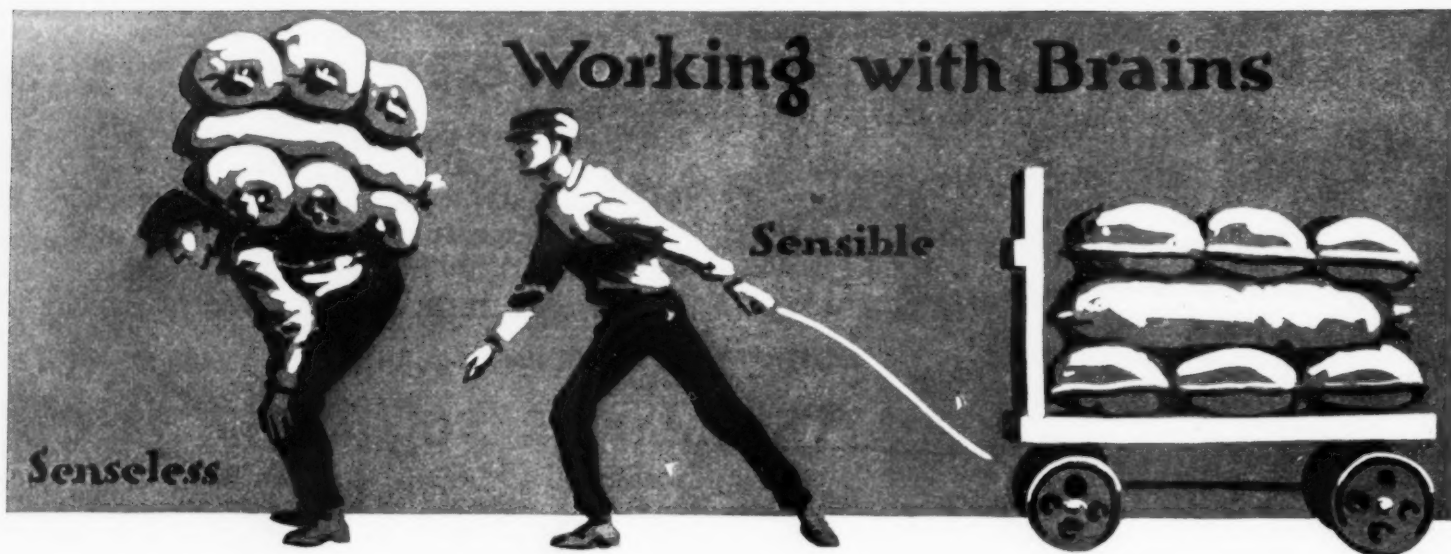
It is light—only 8 tons; portable—moving on its own power anywhere a dump wagon can go, and it is readily loaded on a freight car for shipment.

It saves both in first cost and operation over the heavier types of steam shovels. The price is surprisingly low.

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Loaded to rated capacity it is only about 25% efficient.

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For every pound your truck is rated to *carry* it will deliver half a pound of draw-bar *pull*. And every pound of draw-bar pull will move eight pounds of live load on a properly constructed trailer over any average road.

Now figure your own chances for better trucking.

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Make Your Trailer Pay for the Truck

Convenience isn't the basic argument for motor truck operation. The motor truck won't stay unless it pays. And it must pay in dollars and cents—in absolute saving per ton mile—in net reduction of hauling-expense at the end of the year.

With 75 per cent. of its effective working power allowed to leak away at the draw-bar, your motor truck will have to do unusual work in order to show a net profit. But with Troy Trailers and the conversion of draw-bar pull into actual merchandise pull at the rate of, say, three to one on deliveries, and the former basis of operating cost—profits are no longer questionable.

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NEW YORK CITY
50 Church Street

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Are fully described in our
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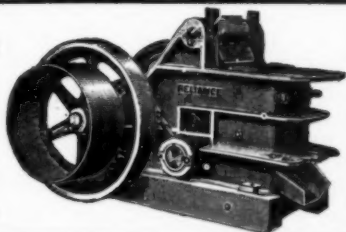
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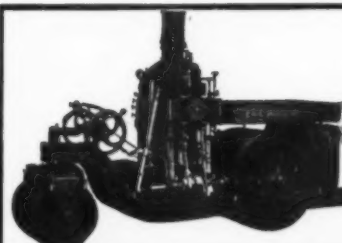
The CUMMER ROAD ASPHALT PLANT

Two Sizes. Three Units. Capacity 750 and 1000 Square Yards 2-inch Top or Macadam Daily

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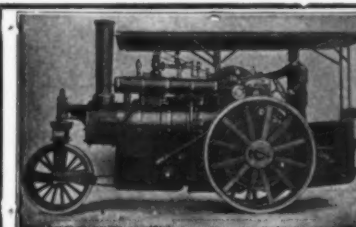
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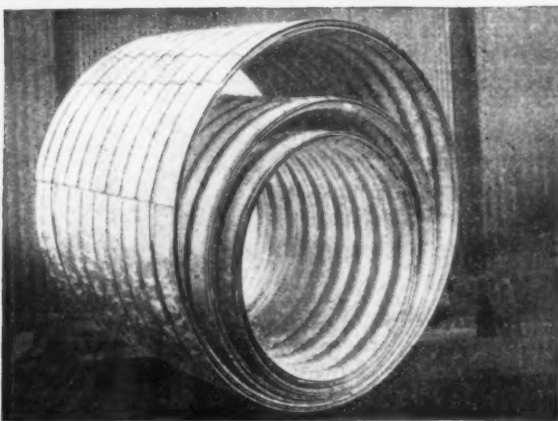
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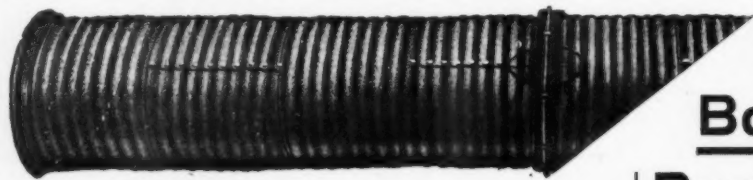
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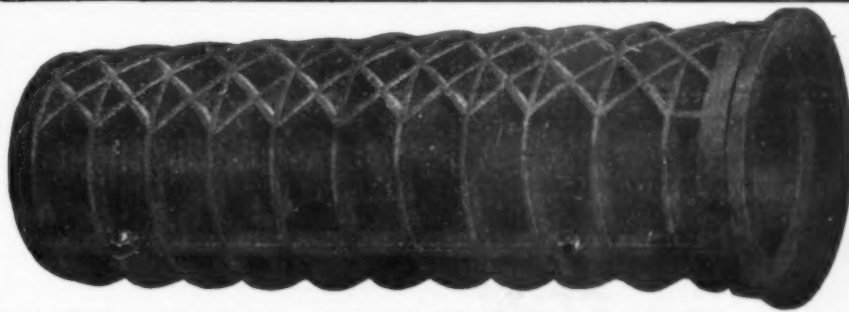
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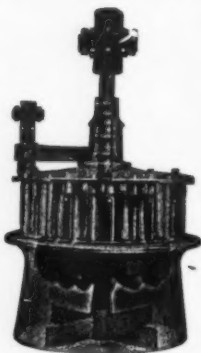
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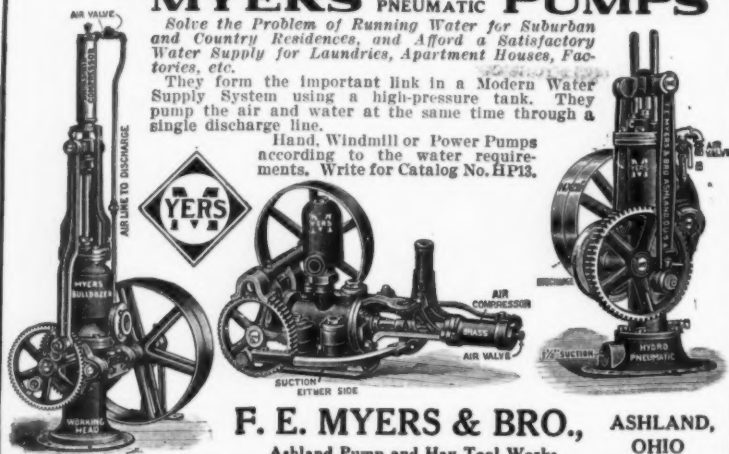


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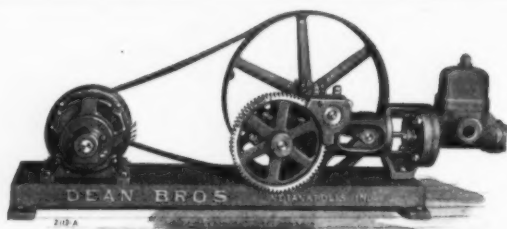
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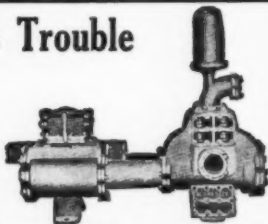
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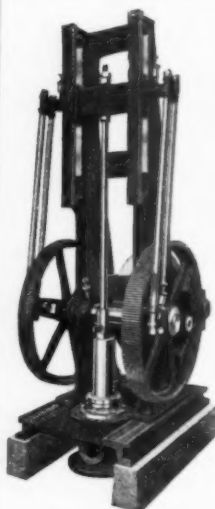
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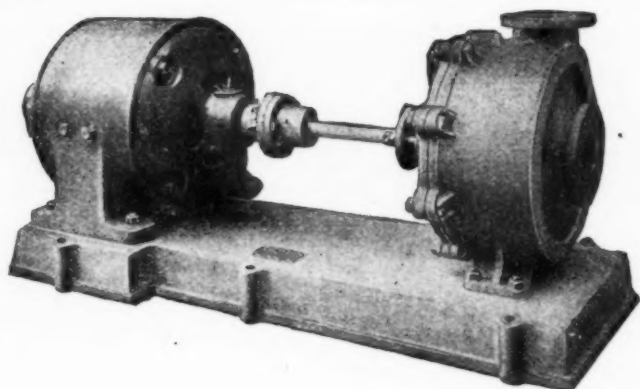
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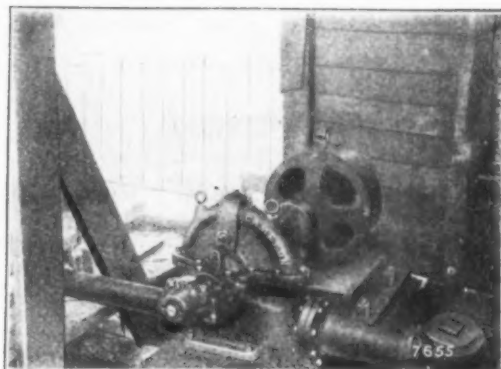
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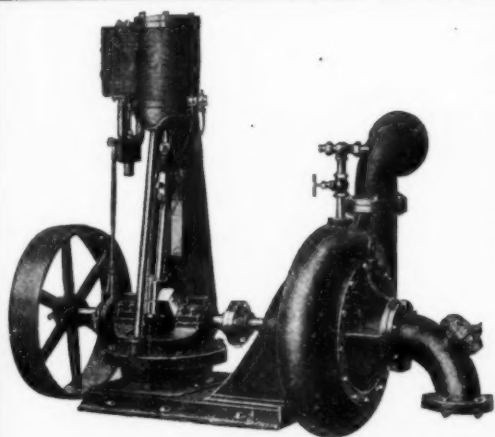
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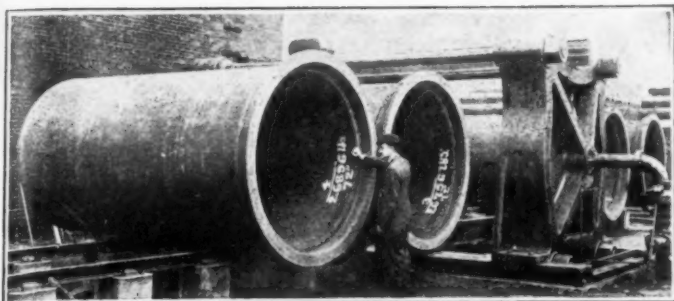
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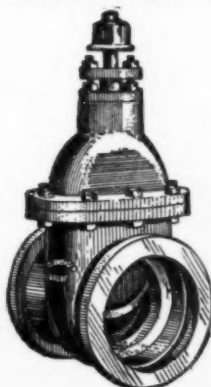
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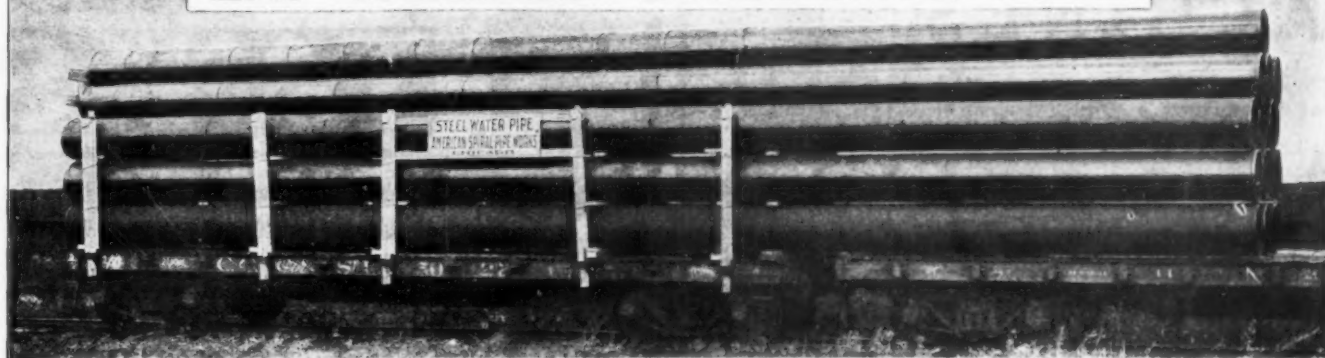
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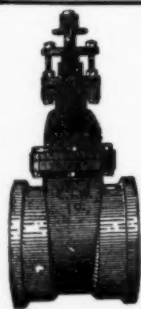
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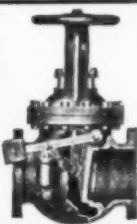
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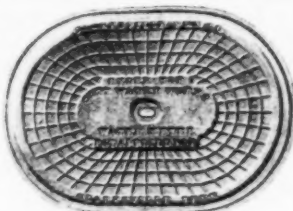
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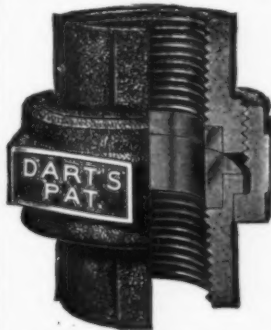
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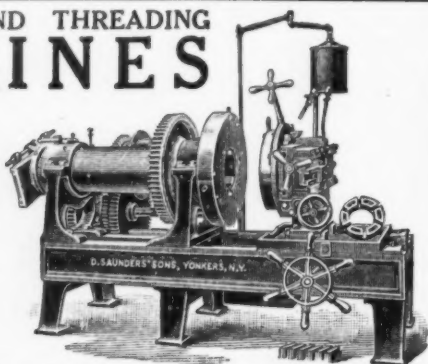
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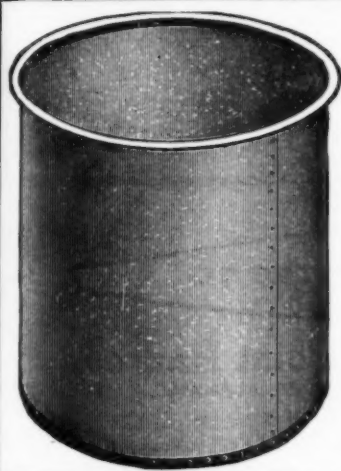
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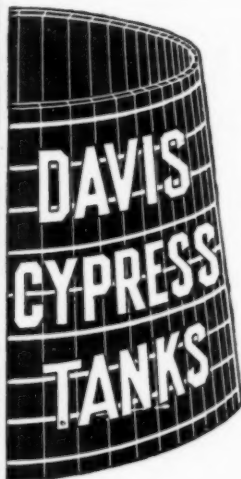
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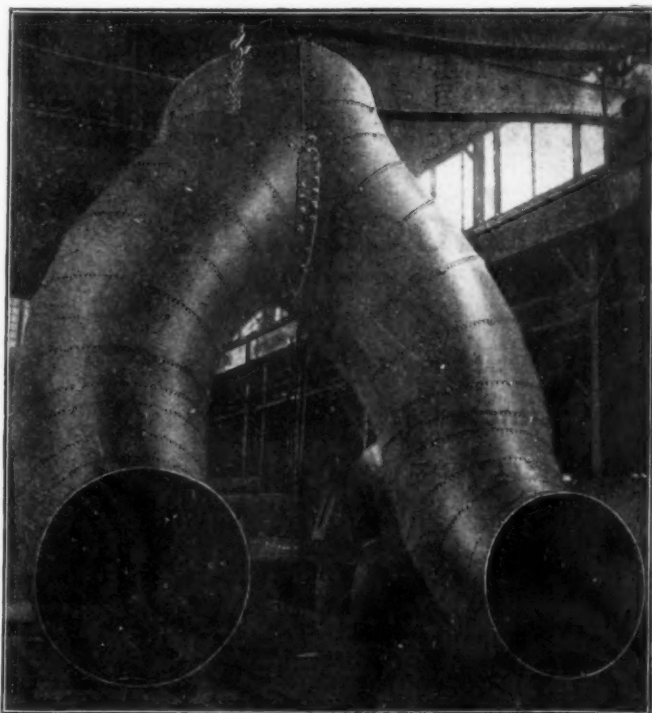
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Healthful location, ample
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The American Farmer's Great Opportunity

In the States traversed by the Baltimore & Ohio there is produced 1-3 of all the corn in the Union; 1-3 of the oats; 1-7 of the wheat; 1-2 of the buckwheat; 1-4 of the hay; about 1-3 of the meats and about 80% of the apples for the whole country.

The European war, which is devastating large areas of farm lands and drawing the tillers of soil away from their work, is bound to bring a great demand for American food products.

The American farmer could easily increase his production of foodstuffs ten or fifteen per cent. by more intensive cultivation, which would add a revenue of \$1,000,000,000 or more to their income.

There is yet time for the farmers of the States traversed by the Baltimore & Ohio, as well as by others, to sow a large increase of wheat and winter oat acreage. Fall plowing and winter plowing should be set about actively and abundant seed corn and seed potatoes laid by for the coming spring.

If these things are done it will be easy for the States traversed by the Baltimore & Ohio to increase the actual wealth of the country next year at least one-third of a billion dollars.

The American farmer has an opportunity before him, the performance of which will mean not only great profit to himself, but greater prosperity to his country.

Investors in farm lands, business men who seek the possibilities in farming and farmers looking for new locations will find it advantageous to investigate the Baltimore & Ohio territory.

Baltimore & Ohio Railroad

W. W. WOOD, General Industrial Agent
Baltimore, Md.

A Synopsis of Clinchfield Resources

The Clinchfield early recognized the great wealth-creating value of the resources of its territory, and in order that authoritative information might be presented to investors, manufacturers, farmers, home-seekers and others it employed men of thorough knowledge to investigate and prepare complete reports covering these resources. It has also established demonstration farms and orchards to prove the adaptability of the soil and climate of its territory for all classes of farming and fruit growing. This work has provided a fund of information dealing with every phase of opportunity available in its territory.

AGRICULTURE

The fruit growing and other agricultural potentialities of the Clinchfield territory have been proven beyond question by the demonstration farms and orchards. In the rich alluvial soil of the broad river bottoms, and the no less rich loams of the many coves and mountainsides along the Clinchfield route, big crops of corn, wheat, oats and fruits of various kinds have responded to intelligent and industrious husbandry, while blue grass, indigenous to the soil, stamps the region as one fit for pasturage, and as offering opportunities in live stock, poultrying and dairying.

MINERALS

One of the greatest sources of wealth in the Clinchfield territory is its wonderful mineral deposits. Among those which offer opportunities are the following:

Kaolin,	Bauxite,	Talc,	Lead,	Soapstone,	Manganese,
Marble,	Tripoli,	Mica,	Clays,	Limestone,	Silica Sand,
Quartz,	Dolomite,	Zinc,	Slate,	Asbestos,	Soda Feldspar,
Barytes,	Monazite,	Coal,	Rutile,	Chromite,	Potash Feldspar.

These offer the basis for a wide range of manufacture.

TIMBER

Located in the heart of the country's future supply of hardwood, the value of the large timber areas of the Clinchfield territory cannot be overestimated in the opportunities presented for the establishment of pulp mills, woodworking plants, including factories for making furniture, chairs, wagons, sash, doors and blinds, etc.

COAL

Located directly on the Clinchfield are the mines of the Clinchfield Coal Corporation, producing annually over 2,000,000 tons, and with an estimated supply of 1,500,000,000 tons; while other coal mines of Southwest Virginia largely increase the present output and the available supply for the future that can be handled to advantage over this road. With the extension into Kentucky this line in Southwest Virginia and Kentucky will cut through a region which has been called the "Heart of America," and by some "The heart of the world's coal fields."

In addition to these advantages there is a plentiful supply of white labor and a splendid, invigorating climate, presenting altogether a combination of manufacturing advantages that cannot be surpassed in the country.

*Complete facts and active co-operation will be extended
to those seeking information regarding this territory.*

Carolina, Clinchfield & Ohio Rwy.

"THE ROAD OF OPPORTUNITY"

R. F. BREWER, Industrial Agent

Johnson City, Tenn.

All Crops Yielding High Prices per Acre are Grown in FLORIDA

The biggest opportunity before the American farmer now is the raising of food products.

The temporary decrease in the demand for cotton, brought about by the European war, is paralleled by the certainty of an increase in demand for foodstuffs in the immediate future.

The world naturally looks to America to supply the deficiency of foodstuffs, and especially to those parts of America where diversified crops can be grown to best advantage.

The following table, based upon figures of the United States Department of Agriculture, strikingly emphasizes Florida's complete advantages of soil and climate for raising a wide range of crops that yield the highest price per acre:

AVERAGE CROP VALUE PER ACRE.

Crop.	Acreage.	Value.	Value per acre
Cotton	36,011,000	\$887,350,000	\$24 64
Corn	105,820,000	1,692,092,000	15 99
Wheat	50,184,000	610,122,000	12 15
Hay	48,954,000	797,077,000	16 28
Oats	38,399,000	439,596,000	11 45
Barley	7,499,000	95,731,000	12 76
Orchard fruits.....	4,000,000	140,867,000	35 23
Irish potatoes.....	3,668,000	227,903,000	62 13
Garden vegetables.....	2,763,000	216,257,000	78 19
Rye	2,557,000	26,220,000	10 25
Flaxseed	2,291,000	21,399,000	9 34
Tobacco	1,216,000	122,481,000	101 55
Peanuts	870,000	18,272,000	21 00
Rice	827,000	22,090,000	26 70
Buckwheat	805,000	10,445,000	12 97
Sweet potatoes.....	625,000	42,884,000	68 61
Sugar beets.....	577,000	34,420,000	59 65
Citrus fruits.....	275,000	23,000,000	83 64
Small fruits.....	272,000	29,974,000	110 19
Sugar-cane	248,000	21,000,000	84 68
Total.....	307,861,000	\$5,479,180,000	\$17 79

Study this table carefully.

You will note that all the high values per acre are of crops that produce abundantly in Florida.

Corn	Hay	Irish Potatoes	Tobacco	Sugar Cane	Citrus Fruits
Cotton	Rice	Garden Vegetables	Peanuts	Sweet Potatoes	Small Fruits

Crops in Florida mature earlier than elsewhere, giving this State the advantage of higher prices that come to products first reaching the market.

All along the East Coast of Florida, from Jacksonville down, are splendid opportunities for the farmer to raise these profitable crops, and any information desired will be gladly furnished.

FLORIDA EAST COAST RAILWAY

(FLAGLER SYSTEM)

J. E. INGRAHAM, Vice-President

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Seaboard Air Line Railway

The Progressive Railway of the South

Announces the establishment of attractive Round-Trip Homeseekers' Rates to Progressive Florida.

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	WASHINGTON, D. C.	CINCINNATI, OHIO
	January 12th, February 9th and FIRST and THIRD TUESDAYS in each succeeding month.	January 5th and 19th and FIRST and THIRD TUESDAYS in each succeeding month.
TICKETS GOOD FOR 21 DAYS		
NORTH FLORIDA		
Lake City	\$22.65	\$27.10
Quincy	24.55	25.60
Tallahassee	24.45	25.60
THE BEAUTIFUL LAKE COUNTRY		
Ocala	25.00	30.00
Orlando	25.00	30.00
Oviedo	25.00	30.00
Leesburg	25.00	30.00
Tavares	25.00	30.00
POLK COUNTY HIGHLANDS		
Bartow	25.00	30.00
PEERLESS PINELLAS		
St. Petersburg, Clearwater, Tarpon Springs, Elfers via Tampa	25.00	30.00
THE FAMOUS MANATEE COUNTY		
Palmetto, Parrish Bradentown, Bee Ridge Sarasota Venice	25.00	30.00

These tickets will be on sale at Washington, D. C., January 12th and February 9th, and two dates in each month thereafter. At Cincinnati on January 5th and 19th, and two dates in each succeeding month—the FIRST and THIRD TUESDAYS—good for 21 days. Stopovers south of Jacksonville going and returning.

The rates and service from The Nation's Capital, WASHINGTON, offers splendid opportunity to the people from the Eastern States to make a Florida trip cheaply and comfortably.

The CINCINNATI rates offer a similar opportunity to the people of the Central States.

You can find attractive openings in the progressive State of Florida. We shall be glad to answer your inquiry for complete information.

SEABOARD AIR LINE RAILWAY

The Progressive Railway of the South

J. A. PRIDE, General Industrial Agent

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- Blowers and Exhaust Fans.**
American Blower Co., Detroit, Mich.
Buffalo Forge Co., Buffalo, N. Y.
General Electric Co., Schenectady, N. Y.
Green Fuel Economizer Co., Matteawan, N. Y.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.
- Blow Torches. (For Soldering and Brazing.)**
Prest-O-Lite Co., Inc., The, Indianapolis, Ind.
- Blueprinters.**
Childrey Co., Richmond, Va.
- Boilers.**
Babcock & Wilcox Co., New York, N. Y.
Bailey & James Stetler & Mch. Co., Joplin, Mo.
Cameron & Barkley Co., Charleston, S. C.
Casey-Hedges Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.
Coatesville Boiler Works, Coatesville, Pa.
Cole Mfg. Co., R. D., Newnan, Ga.
Gibbes Machinery Co., Inc., Columbia, S. C.
Harris Bros. Co., Chicago, Ill.
Hartley Boiler Works, Montgomery, Ala.
Jeffery-Griner Machinery Co., Philadelphia, Pa.
Keeler Co., E., Williamsport, Pa.
Keystone Boiler & Foundry Co., Columbia, Pa.
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.
Lombard Iron Works, Augusta, Ga.
Mecklenburg Iron Works, Charlotte, N. C.
Murray Iron Works, Burlington, Ia.
New York Central Iron Works Co., Hagerstown, Md.
Phoenix Iron Works Co., Meadville, Pa.
Schofield Iron Works, Macon, Ga.
Southern Engine & Boiler Works, Jackson, Tenn.
Valk & Murdoch Iron Works, Charleston, S. C.
Vogt Machine Co., Henry, Louisville, Ky.
Walsh & Weidner Boiler Co., Chattanooga, Tenn.
Zeincker Supply Co., Walter A., St. Louis, Mo.
- Boiler Covering.**
Chesapeake Roofing & Pipe Covering Co., Baltimore, Md.
- Boiler Graphite.**
Dixon Crucible Co., Joseph, Jersey City, N. J.
- Boiler Tubes. [See Tubes, Boiler.]**
- Bolts, Nuts, Rivets, Studs and Washers.**
Progressive Mfg. Co., Torrington, Conn.
Republic Iron & Steel Co., Youngstown, O.
Upson Nut Co., The, Cleveland, O.
- Bonds. (Surety, etc.)**
Fidelity & Deposit Co. of Balto., Baltimore, Md.
- Bottling Outfits.**
Vilter Mfg. Co., Milwaukee, Wis.
- Brass Goods.**
Bailey-Libby Co., Charleston, S. C.
Buckeye Iron & Brass Works, Dayton, O.
Lankenheimer Co., The, Cincinnati, Ohio
Powell Co., Wm., Cincinnati, O.
- Brass Railing and Grilles.**
Newman Mfg. Co., Cincinnati, Ohio
- Brewers' Machinery.**
Vilter Mfg. Co., Milwaukee, Wis.
- Brick. (Acid.)**
Hood Brick Co., B. Miffin, Atlanta, Ga.
- Brick. (Building.)**
Adamantine Clay Products Co., North Mountain, W. Va.
Am. Enamelled Brick & Tile Co., New York, N. Y.
Hood Brick Co., B. Miffin, Atlanta, Ga.
Hydraulic Press Brick Co., St. Louis, Mo.
Kingsport Brick Corp., Johnson City, Tenn.
Scott Brick Co., Alex. A., Knoxville, Tenn.
Southern Face Brick Exchange, Birmingham, Ala.
Standard Brick Co., Macon, Ga.
- Brick. (Enamelled.)**
Am. Enamelled Brick & Tile Co., New York, N. Y.
- Brick. (Fire.)**
Killian Fireproofing & Brick Works, Killian, S. O.
Louisville Fire Brick Works, Highland Park, Ky.
Mexico Brick & Fire Clay Co., Mexico, Mo.
Pomona Terra-Cotta Co., Pomona, N. O.
Standard Brick Co., Macon, Ga.
Stevens' Sons Co., H., Macon, Ga.
Union Mining Co., Mt. Savage, Md.
- Brick. (Paving.)**
Carlyle Paving Brick Co., Portsmouth, O.
Copeland-Ingis Shale Brick Co., Birmingham, Ala.
Dunn Wire-Out-Leg Brick Co., Conneaut, Ohio
Southern Clay Mfg. Co., Chattanooga, Tenn.
Standard Brick Co., Macon, Ga.
- Brick and Clayworking Machinery and Supplies.**
Chase Fdry. & Mfg. Co., Columbus, O.
Furnholtz Brick Machinery Co., St. Louis, Mo.
Freese & Co., E. M., Gallon, O.
Steele & Sons, J. C., Statesville, N. C.
- Bridges. (Concrete.)**
Cunningham Construction Co., Shreveport, La.
Luten, Daniel B., Indianapolis, Ind.
Requarth Co., C. W., Charlotte, N. C.
Turner, O. A. P., Minneapolis, Minn.
- Bridges. (Rolling Lift.)**
Scherzer Rolling Lift Bridge Co., Chicago, Ill.
- Bridges. (Steel.)**
American Bridge Co. of New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Champion Bridge Co., Wilmington, Ohio.
Chicago Bridge & Iron Works, Chicago, Ill.
Cunningham Construction Co., Shreveport, La.
East St. Louis Bridge Co., East St. Louis, Ill.
Oregonia Bridge Co., Lebanon, Ohio.
Richmond Structural Steel Co., Richmond, Va.
Scherzer Rolling Lift Bridge Co., Chicago, Ill.
Vincennes Bridge Co., Vincennes, Ind.
Virginia Bridge & Iron Co., Roanoke, Va.
- Bridge and Structural Iron Paints.**
Chattanooga Paint Co., Chattanooga, Tenn.
- Brimstone.**
Union Sulphur Co., New York, N. Y.
- Buckets. (Clam Shell, Orange Peel, etc.)**
Hayward Company, New York, N. Y.
Williams Company, G. H., Cleveland, Ohio.
- Buckets. (Dredging, Excavating, Sewer, etc.)**
Hayward Co., New York, N. Y.
Monaghan Mch. Co., Chicago, Ill.
Williams Co., The G. H., Cleveland, O.
- Buckets. (Grab.)**
Hunt Co., Inc., C. W., West New Brighton, N. Y.
- Buckets. (Ore Handling.)**
Caldwell & Son Co., H. W., Chicago, Ill.
Hayward Co., New York, N. Y.
Link-Belt Co., Nicesown (Philadelphia) Pa.
Williams Co., The G. H., Cleveland, O.
- Buhr Stones.**
Starr Co., B. F., Baltimore, Md.
- Builders and Contractors.**
Interstate Const. Co., Louisville, Ky.
Stone & Webster Eng. Corp., Boston, Mass.
Turner, O. A. P., Minneapolis, Minn.
White Companies, J. G., New York, N. Y.
- Building Stone.**
Atlantic Stone Co., Atlanta, Ga.
Bedford Steam Stone Works, Bedford, Ind.
- Building Supplies.**
Harris Bros. Co., Chicago, Ill.
Southern Building Material Co., Norfolk, Va.
- Burners. (Oil.) [See Fuel Oil Equipments.]**
- Bushings. (Oilless, for Loose Pulleys.)**
Metalline Co., Long Island City, N. Y.
- Cables.**
Broderick & Bascom Rope Co., St. Louis, Mo.
Roebling's Sons Co., John A., Trenton, N. J.
- Cables. (Underground.)**
Safety Insulated Wire & Cable Co., New York, N. Y.
- Cables and Wires. (Insulated.)**
American Steel & Wire Co., Chicago, Ill.
Safety Insulated Wire & Cable Co., New York, N. Y.
- Cableways. (Overhead Suspension.)**
Ambursen Co. (Tramway Department, New York, N. Y.)
Broderick & Bascom Rope Co., St. Louis, Mo.
Flory Mfg. Co., S., Bangor, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Roebling's Sons Co., John A., Trenton, N. J.
- Can and Box Making Machinery. (Tin.)**
Bliss Co., E. W., Brooklyn, N. Y.
- Canning Machinery and Supplies.**
Robins & Co., A. K., Baltimore, Md.
Sprague Canning Machinery Co., Chicago, Ill.
- Carborundum Paper and Cloth.**
Carborundum Co., Niagara Falls, N. Y.
- Cars. (Dump, Industrial, Logging and Mine.)**
Austin Mfg. Co., Chicago, Ill.
Chase Fdry. & Mfg. Co., Columbus, O.
Curd, Geo. B., Cincinnati, Ohio
Electric Wheel Co., Quincy, Ill.
Georgia Car & Locomotive Co., Atlanta, Ga.
Hunt Co., C. W., Inc., West New Brighton, N. Y.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Western Wheelbarrow Co., Aurora, Ill.
- Cars. (Passenger and Freight.) [See Railroad Equipment and Supplies.]**
- Car Wheels, Axles and Trucks.**
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
- Cast Iron Pipe. (See Pipe.) [Cast Iron.]**
- Castings. (Aluminum.)**
Aluminum Company of America, Pittsburgh, Pa.
- Castings. (Brass and Bronze.)**
McKenna Bros. Brass Co., Pittsburgh, Pa.
Triumph Electric Co., Cincinnati, O.
- Castings. (Gray Iron.)**
Columbian Iron Works, Chattanooga, Tenn.
Georgia Car & Locomotive Co., Atlanta, Ga.
Giamorran Pipe & Foundry Co., Lynchburg, Va.
Lynchburg Foundry Co., Lynchburg, Va.
Phoenix Iron Works Co., Meadville, Pa.
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.
Valk & Murdoch Iron Works, Charleston, S. C.
Westbrook Elevator Co., Danville, Va.
- Castings. (Malleable Iron and Steel.)**
Columbus Malleable Iron Co., Columbus, Ohio.
General Malleable Co., Warren, O.
Marion Malleable Iron Works, The, Marion, Ind.
Missouri Malleable Iron Co., East St. Louis, Ill.
- Castings. (Steel.)**
Crucible Steel Castings Co., Lansdowne, Pa.
Hoffman & Co., Inc., R. O., Baltimore, Md.
Phoenix Iron Works Co., Meadville, Pa.
Riverside Steel Casting Co., Newark, N. J.
- Ceilings. (Metal.)**
Edwards Manufacturing Co., Cincinnati, O.
Keighley Metal Cell. & Mfg. Co. S., Pittsburgh, Pa.
- Cement.**
Cinchfield Portland Cem. Corp., Kingsport, Tenn.
Dixie Portland Cement Co., Chattanooga, Tenn.
Hartman Portland Cement Co., Philadelphia, Pa.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.
Kosmos Portland Cement Co., Inc., Louisville, Ky.
Lehigh Portland Cement Co., Allentown, Pa.
Southern States Portland Cem. Co., Rockmart, Ga.
Standard Portland Cement Co., Leeds, Ala.
- Cement Machinery.**
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Mining Engineering Co., J. R., New York, N. Y.
Power & Mining Machinery Co., Oudaby, Wis.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Chains. (Dredge, Quarry, Steam Shovel.)**
Weimer Chain & Iron Co., Lebanon, Pa.
- Chemists. (Analytical and Consulting.)**
Davis, Geo. C., Philadelphia, Pa.
Froehling & Robertson, Richmond, Va.
Hunt & Co., Robt. W., Chicago, Ill.
Little Inc., A. D., Boston, Mass.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.
Wiley & Co., Baltimore, Md.
- Chloride Accumulator.**
Electric Storage Battery Co., The, Philadelphia, Pa.
- Chucks.**
More Twist Drill & Mch. Co., New Bedford, Mass.
- Cities and Towns. (Commercial and Industrial Opportunities.) [See Industrial, Agricultural and Commercial Opportunities.]**
- Clamps. (For Concrete Forms.)**
Sterling Wheelbarrow Co., Milwaukee, Wis.
- Clayworking Machinery. [See Brick and Clayworking Machinery and Supplies.]**
- Cleansing Compound. (Floors, Etc.)**
India Alkali Works, Boston, Mass.
- Clocks. (Watchman.)**
Watchman's Clock & Supply Co., New York, N. Y.
- Clutches. (Friction.)**
Affiliated Manufacturers Co., Milwaukee, Wis.
Mead Pat. Pulley Co., St. Louis, Mo.
Moore & White Co., The, Philadelphia, Pa.
- Coal.**
Cinchfield Coal Corp., Dante, Va.
Cinchfield Fuel Co., Spartanburg, S. C.
Consolidation Coal Co., Inc., New York, N. Y.
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.
- Coal Cutters.**
Jeffery Mfg. Co., Columbus, O.
- Coal Handling Machinery.**
Bartlett & Snow Co., C. O., Cleveland, O.
Guarantee Construction Co., New York, N. Y.
Hayward Co., New York, N. Y.
Hunt Co., C. W., Inc., West New Brighton, N. Y.
Jeffery Mfg. Co., Columbus, O.
Link-Belt Co., Nicesown (Philadelphia) Pa.
Weller Mfg. Co., Chicago, Ill.
- Coal Tar and By-Products.**
Harrett Mfg. Co., Philadelphia, Pa.
- Coal Tipples.**
American Bridge Co. of New York, N. Y.
- Coke.**
Tennessee Coal, Iron & R. R. Co., H'm'gh'm, Ala.
- Cold Store Doors.**
Brecht Co., The, St. Louis, Mo.
- Colleges and Schools.**
Rensselaer Polytechnic Institute, Troy, N. Y.
- Colleges. (Technical.)**
Rensselaer Polytechnic Institute, Troy, N. Y.
- Columns. (Porch, Interior, Pergola.)**
Nickerson Mfg. Co., Knoxville, Tenn.
- Concrete Construction. (Reinforced.)**
Herry-Fortune Construction Co., Easton, Ga.
Cunningham Construction Co., Shreveport, La.
Foster-Oreighton-Gould Co., Nashville, Tenn.
Guarantee Construction Co., New York, N. Y.
Jeffery Mfg. Co., Columbus, O.
Requarth Co., C. W., Charlotte, N. C.
Turner, O. A. P., Minneapolis, Minn.
- Concrete Curb Protector. (Steel.)**
Steel Protected Concrete Co., Philadelphia, Pa.
- Concrete Mixers. [See Mixers. (Concrete)]**
- Concrete Reinforcing Bars.**
Carnegie Steel Co., Pittsburgh, Pa.
Gulf States Steel Co., Birmingham, Ala.
Hoffman & Co., R. O., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Lackawanna Steel Co., Lackawanna, N. Y.
Laclede Steel Co., St. Louis, Mo.
Pardee Works, C. Perth Amboy, N. J.
Republic Iron & Steel Co., Youngstown, O.
Sweets Steel Co., Williamsport, Pa.
- Concrete Reinforcing Bar Couplings.**
Marion Malleable Iron Works, Marion, Ind.
- Concrete Reinforcing Wire and Wire Fabric.**
American Steel & Wire Co., Chicago, Ill.
Roebling's Sons Co., John A., Trenton, N. J.
- Condensers.**
Alberger Pump & Condenser Co., New York, N. Y.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Oreoson-Morris Co., Philadelphia, Pa.
Dean Bros., Steam Pump Wks., Indianapolis, Ind.
Westinghouse Machine Co., Pittsburgh, Pa.
York Mfg. Co., York, Pa.
- Conductor Pipes.**
Edwards Mfg. Co., Cincinnati, O.
- Contractors. (Concrete.)**
Herry-Fortune Construction Co., Easton, Ga.
- Contractors. (Drainage)**
Thompson & Mosely, Greensboro, N. C.
- Contractors. (Hydro-Electric Developments.)**
Requarth Co., C. W., Charlotte, N. C.

Contractors. (Water Supply.)

Layne & Bowler Co., Houston, Tex.

Contractor's Machinery and Supplies. [See also Hoisting Machinery.]

American Clay Machinery Co., The, Bucyrus, Ohio.
American Hoist & Derrick Co., St. Paul, Minn.
Austin Mfg. Co., Chicago, Ill.
Beyer Mach. Co., The John F., Ravenna, O.
Card, Geo. B., Cincinnati, O.
Flory Mfg. Co., S., Bangor, Pa.
Hyde Bros. Steel & Rail Co., Pittsburgh, Pa.
Marine Metal & Supply Co., New York, N. Y.
Milburn Co., Alex. N., Baltimore, Md.
Monahan Mch. Co., Chicago, Ill.
National Hoisting Engine Co., Harrison, N. J.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Sherwood, E. O., New York, N. Y.
Sterling Machinery Co., New York, N. Y.
Thaw & Williams, Cincinnati, O.

Conveying and Elevating Machinery.

Amburns Co., (Tramway Department), New York, N. Y.
Bartlett & Snow Co., C. O., Cleveland, O.
Caldwell & Son Co., H. W., Chicago, Ill.
Flory Mfg. Co., S., Bangor, Pa.
Guarantee Construction Co., New York, N. Y.
Hunt Co., C. W., Inc., West New Brighton, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Co., Nictown, (Philadelphia) Pa.
Mathews Gravity Carrier Co., Ellwood City, Pa.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Weller Mfg. Co., Chicago, Ill.

Cooperage Stock and Box Shook Machinery.

Gerlach Co., Peter, Cleveland, O.

Coppersmiths.

McMillan Bros., Jacksonville, Fla.

Cordage.

Broderick & Bascom Rope Co., St. Louis, Mo.
Columbian Rope Co., Auburn, N. Y.
Waterbury Co., New York, N. Y.

Corn-Mill Machinery.

Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Starr Co., B. F., Baltimore, Md.
Wolf Co., Chambersburg, Pa.

Cotton Oil and Products.

American Cotton Oil Co., New York, N. Y.

Cotton Yarns. (Commission Merchants.)

Paulson, Linkroom & Co., New York, N. Y.

Cotton-Gin Machinery.

Carver Cotton Gin Co., East Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
Gibbs Machinery Co., Inc., Columbia, S. C.
Murray Co., The, Atlanta, Ga.

Cotton-Mill Machinery.

Draper Co., Hopedale, Mass.
Mason Machine Works., Taunton, Mass.
Saco-Lowell Shop, Boston, Mass.
Whitinsville Spin'g Ring Co., Whitinsville, Mass.

Cotton-Mill Supplies.American Supply Co., Providence, R. I.
Whitinsville Spin'g Ring Co., Whitinsville, Mass.**Cottonseed-Oil Machinery.**

Buckeye Iron & Brass Works, Dayton, O.
Burruss Engineering Co., Atlanta, Ga.
Cardwell Machine Co., Richmond, Va.
Carver Cotton Gin Co., East Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
French Oil Mill Machinery Co., Fiqua, O.
Murray Co., The, Atlanta, Ga.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.

Couplings.

American Spiral Pipe Works, Chicago, Ill.
Golden's Foundry & Machine Co., Columbus, Ga.
Wood's Sons Co., T. B., Chambersburg, Pa.

Couplings. (Car.)

Weimer Chain & Iron Co., Lebanon, Pa.

Couplings. (Hose, Air, Gas, Steam and Water.)

National Tube Co., Pittsburgh, Pa.

Coverings. (Pipe, Boiler, etc.)

Johns-Manville Co., H. W., New York, N. Y.
Southern Asbestos Mfg. Co., Inc., Richmond, Va.

Cranes. (Locomotive.)

American Hoist & Derrick Co., St. Paul, Minn.
Ohio Locomotive Crane Co., Bucyrus, O.

Cranes. (Traveling, Hand, Power, Hydraulic.)

Lane Mfg. Co., Montpelier, Vt.
Speidel, J. G., Reading, Pa.

Crayons.

Georgia Talc Co., Asheville, N. C.
Lowell Crayon Co., Lowell, Mass.

Cresosoting Equipment.

Oasey-Hedges Co., Chattanooga, Tenn.
Struthers-Weiss Co., Warren, Pa.
Walsh & Weider Boiler Co., Chattanooga, Tenn.

Cresosoting Works.

American Cresosote Works, New Orleans, La.
Internat'l Cresosot'g & Cons. Co., Galveston, Tex.
National Lumber & Cresos. Co., Texarkana, Ark.
Southern Cresosoting Co., Ltd., Slidell, La.
Southern Wood Preserving Co., Atlanta, Ga.

Crossarms and Pins.

Western Electric Co., New York, N. Y.

Crossarms. (Cresosoted.)

American Cresosote Wks., New Orleans, La.
Internat'l Cresosoting & Cons. Co., Galveston, Tex.
National Lumber & Cresosoting Co., Texarkana, Ark.
Southern Cresosoting Co., Ltd., Slidell, La.
Southern Wood Preserving Co., Atlanta, Ga.

Crossings. [See Railroad Frogs and Switches.]**Crosstie Machine.**

Standard Portable Saw Mill Co., New Orleans, La.

Crossties. (Cresosoted.)

American Cresosote Works, New Orleans, La.
Internat'l Cresosot'g & Cons. Co., Galveston, Tex.
National Lumber & Cresos. Co., Texarkana, Ark.
Southern Cresosoting Co., Ltd., Slidell, La.
Southern Wood Preserving Co., Atlanta, Ga.

Crushed Stone. (Road Concrete and Ballast.)

American Ballast Co., Knoxville, Tenn.
Atlantic Stone Co., Atlanta, Ga.
Bald Mountain Quarry, Newson, N. C.
Chickamauga Quarry & Construction Co., Chattanooga, Tenn.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.
Weston Brook Quarry Co., Columbia, S. C.

Crushers. (Corn and Cob.)

Grundler Pat. Crusher & Pulv. Co., St. Louis, Mo.
Jeffrey Mfg. Co., Columbus, O.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.

Crushers. (Rock.)

Austin Mfg. Co., Chicago, Ill.
Buchanan Co., Inc., C. G., New York, N. Y.
Power & Mining Machinery Co., Oudaby, Wis.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Universal Road Mch. Co., Kingston, N. Y.
Western Wheeled Scraper Co., Aurora, Ill.
Wheeling Mold & Fdry. Co., Wheeling, W. Va.

Crushing and Pulverizing Machinery.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Aising Engineering Co., J. R., New York, N. Y.
Austin Mfg. Co., Chicago, Ill.
Bartlett & Snow Co., C. O., Cleveland, O.
Buchanan Co., Inc., C. G., New York, N. Y.
Grundler Pat. Crusher & Pulv. Co., St. Louis, Mo.
Jeffrey Mfg. Co., Columbus, O.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Stedman's Foundry & Machine Works, Aurora, Ill.
Western Wheeled Scraper Co., Aurora, Ill.
Wheeling Mold & Fdry. Co., Wheeling, W. Va.

Culvert Pipe. (Cast Iron.)

American Cast Iron Pipe Co., Birmingham, Ala.
Clow & Sons, James B., Chicago, Ill.
Donaldson Iron Co., Emmaus, Pa.
Glanorgan Pipe & Foundry Co., Lynchburg, Va.
Lynchburg Foundry Co., Lynchburg, Va.
Massillon Iron & Steel Co., Massillon, Ohio.
Standard Cast Iron Pipe & Foundry Co., Bristol, Pa.
Wood & Co., R. D., Philadelphia, Pa.

Culverts. (Corrugated Metal.)

American Sheet & Tin Plate Co., Pittsburgh, Pa.
Armco Culvert Publicity Bureau, Cincinnati, O.
Atlas Metal Works, Dallas, Tex.
Canton Culvert and Silo Co., The, Canton, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Gallon Iron Works & Mfg. Co., The, Gallon, Ohio.
Harry Bros. Co., Newport, Ky.
Lone Star Culvert Co., Houston, Tex.
National Corrugated Culvert Mfg. Co., Warren, Pa.
Salsburg Metal Culvert Co., Inc., Salsburg, N. O.
Tennessee Metal Culvert Co., Nashville, Tenn.
Virginia Metal & Culvert Co., Inc., Roanoke, Va.

Culverts. (Vitrified Pipe.)

Southern Sewer Pipe Co., Birmingham, Ala.
Stevens Sons Co., H., Macon, Ga.

Cupola Furnaces.

Paxson Co., J. W., Philadelphia, Pa.

Curb Protector. (Steel.)

Steel Protected Concrete Co., Philadelphia, Pa.

Cutter Grinders.

Vitrified Wheel Co., Westfield, Mass.

Cutting. (Oxy-Acetylene Process.)

Prest-O-Lite Co., Inc., The, Indianapolis, Ind.

Cuts. (Half Tone, Line, Etc.)

Alpha Photo Engraving Co., Balto, Md.

Dams. (Reinforced Concrete.)

Berry-Fortune Construction Co., Estonton, Ga.

Derricks and Derrick Fittings.

American Hoist & Derrick Co., St. Paul, Minn.
Byers Mach. Co., The John F., Ravenna, O.
Hayward Co., The, New York, N. Y.
Monaghan Machine Co., Chicago, Ill.

Designers and Illustrators. (Printed Matter.)

Alpha Photo Engraving Co., Baltimore, Md.

Ditching Machinery.

American Hoist & Derrick Co., St. Paul, Minn.
American Steel Dredge Co., Fort Wayne, Ind.
Bay City Dredge Works., Bay City, Mich.
Fairbanks Steam Shovel Co., Marion, O.
Gade Excavating Co., Iowa Falls, Iowa.
Hayward Co., The, New York, N. Y.
Marion Steam Shovel Co., Marion, O.
Monaghan Machine Co., Chicago, Ill.
Thew Automatic Shovel Co., Lorain, Ohio.
Williams Co., The, G. H., Cleveland, O.

Doors. (Steel Rolling.)

Kinnear Mfg. Co., Columbus, O.

Van Hurling, J. M., Atlanta, Ga.

Doors. (Tin Clad.)

Victor Mfg. Co., Newburyport, Mass.

Draftsman.

Childrey Co., Richmond, Va.

Draftsmen's Supplies.

Weber & Co., F., Philadelphia, Pa.

Dredge Chains.

Weimer Chain & Iron Co., Lebanon, Pa.

Dredges. [See Excavating Machinery.]**Drills. (Pneumatic) [See also Drills Rock and Mining.]**

Drills. (Prospecting.)
Keystone Steam Well Mach. Co., Beaver Falls, Pa.

Drills. (Rock and Mining.)

Independent Pneumatic Tool Co., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.
Wickes Bros., Jersey City, N. J.

Drills. (Twist.)

McKenna Bros. Brass Co., Pittsburgh, Pa.
Morse Twist Drill & Mch. Co., New Bedford, Mass.

Drive Well Points and Well Supplies.

National Tube Co., Pittsburgh, Pa.

Drop Forgings.

American Spiral Pipe Works, Chicago, Ill.

Drop Forging Machinery.

Bliss Co. E. W., Brooklyn, N. Y.

Dry Docks. (Builders of)

American Bridge Co., of New York, N. Y.

Drying Machinery.

American Process Co., New York, N. Y.
Bailley-Lobby Co., The, Charleston, S. C.
Buffalo Forge Co., Buffalo, N. Y.
Conestoga, Boiler Works, Conestoga, Pa.
Cummer & Son Co., F. D., The, Cleveland, Ohio.
Hersey Manufacturing Co., South Boston, Mass.
Ruggles-Coles Engineering Co., New York, N. Y.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.

Dry Kilns.

Buffalo Forge Co., Buffalo, N. Y.
Moore Dry Kiln Co., L., Jacksonville, Fla.

Dry Kiln Equipment.

Moore Dry Kiln Co., L., Jacksonville, Fla.

Dumbwaiters. (Hand Power)

King, Wm. F., Brooklyn, N. Y.
McKenna Bros. Brass Co., Pittsburgh, Pa.
Speidel, J. G., Reading, Pa.

Dump Wagons and Wagon Axes

Troy Wagon Works Co., Troy, O.

Dust-Collecting System

Buffalo Forge Co., Buffalo, N. Y.
King Co., F. E., Norfolk, Va.
South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.

Dynamite. (Industrial and Agricultural.)

Du Pont De Nemours Powder Co., E. I.
Keystone Nat'l Powder Co., Emporium, Pa.

Dynos and Motors.

Assets Purchasing Co., Wheeling, W. Va.
General Electric Co., Schenectady, N. Y.
Pan Electric Mfg. Co., St. Louis, Mo.
Terry Steam Turbine Co., Hartford, Conn.
Triumph Electric Co., Cincinnati, O.
Western Electric Co., New York, N. Y.

Eaves. (Trough.)

Edwards Mfg. Co., Cincinnati, O.

Ejectors. (Sewage.)

Lunkenheimer Co., The, Cincinnati, O.
Pacific Flush Tank Co., New York, N. Y.

Electric Machinery. (Dynos, Generators, Motors, etc.)

Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
American Elevator & Mch. Co., Louisville, Ky.
Crockett-Wheeler Co., Ampere, N. J.
Engberg Electric & Mechanical Works, St. Joseph, Mich.
Fairbanks-Morse & Co., Atlanta, Ga.
General Electric Co., Schenectady, N. Y.
Heer Engine Co., Portsmouth, N. H.
Lee Electric Co., Baltimore, Md.
Moore & Co., Edgar M., Pittsburgh, Pa.
Pan Electric Mfg. Co., St. Louis, Mo.
Piedmont Electric Co., Asheville, N. C.
Robbins & Myers Co., Springfield, O.
Scheiner Co., R., Philadelphia, Pa.
Schroeder Electric Co., Evansville, Ind.
Sturtevant Co., B. F., Hyde Park Boston, Mass.
Triumph Electric Co., Cincinnati, O.
Wilson Mch. Co., Harold R., St. Louis, Mo.

Electrical Contractors, Instruments and Supplies.

Crockett-Wheeler Co., Ampere, N. J.
Economy Fuse & Mfg. Co., Chicago, Ill.
General Electric Co., Schenectady, N. Y.
Hill & Co., Walter E., Baltimore, Md.
Lee Electric Co., Baltimore, Md.
Levy-Morton Co., Columbus, Ga.
Piedmont Electric Co., Asheville, N. C.
Robbins & Myers Co., Springfield, O.

Electric Light Plants. (Portable.)

Schroeder Electric Co., Evansville, Ind.

Electro-Magnet. [See Magnet Electro.]**Electric Vehicles.**

General Vehicle Co., Long Island City, N. Y.

Elevating, Conveying and Power Transmission Machinery. [See also Conveying and Elevating Machinery and Power Transmission Mch.]**Elevator****ELECTRIC.**

American Electric Machine & Elevator Co., St. Louis, Mo.
Atlas Machine Co., Louisville, Ky.
Curren Elevator Co., James H., Cincinnati, O.
K. C. Elevator Mfg. Co., Kansas City, Mo.
Miller Elevator Mfg. Co., Wm. A., St. Louis, Mo.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Ohio Elevator & Machine Co., Columbus, O.
Otis Elevator Co., New York, N. Y.
Speidel, J. G., Reading, Pa.
Westbrook Elevator Co., Danville, Va.

HAND AND BELT POWER.

American Electric Machine & Elevator Co., St. Louis, Mo.
Atlas Machine Co., Louisville, Ky.
Curren Elevator Co., James H., Cincinnati, O.
K. C. Elevator Mfg. Co., Kansas City, Mo.
Miller Elevator Mfg. Co., Wm. A., St. Louis, Mo.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Ohio Elevator & Machine Co., Columbus, O.
Otis Elevator Co., New York, N. Y.
Speidel, J. G., Reading, Pa.
Westbrook Elevator Co., Danville, Va.

HYDRAULIC.

American Electric Machine & Elevator Co., St. Louis, Mo.
Curren Elevator Co., James H., Cincinnati, O.
K. C. Elevator Mfg. Co., Kansas City, Mo.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Ohio Elevator & Machine Co., Columbus, O.
Otis Elevator Co., New York, N. Y.

STEAM HYDRAULIC.

Ridgway & Son Co., The, Coatesville, Pa.

Elevators. (Automatic.)

Mathews Gravity Carrier Co., Ellwood City, Pa.

Elevators. (Portable for Warehouses, etc.)

Economy Engineering Co., Chicago, Ill.

Elevator Bolts.

Upon Nut Co., The, Cleveland, O.

Elevator Buckets.

Caldwell & Son Co., H. W., Chicago, Ill.
Hendrick Mfg. Co., Carbondale, Pa.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Co., Nictown (Philadelphia), Pa.

Elevator Enclosures and Cabs.

Bolles Iron & Wire Works, J. E., Detroit, Mich.
Cincinnati Mfg. Co., Cincinnati, O.
Dow Wire & Iron Works Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Baggot & Co., Baltimore, Md.
Meyers Mfg. Co., The Fred J., Hamilton, O.
Ohio Elevator & Machine Co., The, Columbus, O.
Otis Elevator Co., New York, N. Y.

Elevator Rope. [See Wire Rope.]**Elevator Safety Gates.**

American Elec. Mch. & Elevator Co., St. Louis, Mo.
Richmond Safety Gate Co., Richmond, Ind.

Emery Wheels. [See Grinding Wheels.]**Employment Bureau.**

Diamond Labor Agency, Chicago, Ill.

Engineers.**APPROVAL.**

Atlantic Engineering Co., Savannah, Ga.
Day & Zimmerman, Philadelphia, Pa.
Ferree Co., The H. G., Memphis, Tenn.
Maxey, John Wharton, Houston, Tex.

BLAST FURNACES.

Smythe Co., The S. R., Pittsburgh, Pa.

BRIDGE.Atlantic Engineering Co., Savannah, Ga.
Greiner & Whitman, Baltimore, Md.**CHEMICAL.**

Crosby, Walter W., Baltimore, Md.
Institute of Industrial Research, Washington, D. C.
Little, Inc., A. D., Boston, Mass.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.

CIVIL.

Arnold Co., The, Chicago, Ill.
Blair & Drane, Charlotte, N. C.
Brown & Clarkson, Washington, D. C.
Bryant, Glaucus A., Wilson, N. C.
Ferree Co., H. G., Memphis, Tenn.
Hogue Engineering Ass'n., Charleston, W. Va.
Knowles, Morris, Pittsburgh, Pa.
Moile H. E., New York, N. Y.
Putter, Alexander, New York, N. Y.
Renshaw & Breese, Huntington, W. Va.
Rucker, B. Parks, Charlotte, N. C.
Shand Engineering Co., Columbia, S. C.
Stevens, Harry, Washington, D. C.
Thompson & Moseley, Greensboro, N. C.
Waldo, W., Houston, Tex.
Walker Engineering Corp., Tampa, Fla.
White Companies, J. G., New York, N. Y.

DAMS.

Quick, Alfred M., Baltimore, Md.
Requarth Co., C. W., Charlotte, N. C.
Spiker, William O., Atlanta, Ga.
White Companies, J. G., New York, N. Y.

DOCKS.

Greiner & Whitman, Baltimore, Md.

DRAINAGE AND IRRIGATION.

Atlantic Engineering Co., Savannah, Ga.
Brown & Clarkson, Washington, D. C.
Bryant, Glaucus A., Wilson, N. C.
Dabney Engineering Co., Memphis, Tenn.
Ford, Bacon & Davis, New York, N. Y.
Knowles, Morris, Pittsburgh, Pa.
McCrady Bros. & Chaves, Inc., Charleston, S. C.
Perkins, Edmund T., Engineering Co., Chicago, Ill.
Thompson & Moseley, Greensboro, N. C.
Walker Engineering Corp., Tampa, Fla.

EFFICIENCY.

Crosby, Walter W., Baltimore, Md.
Institute of Industrial Research, Washington, D. C.
Little, Inc., A. D., Boston, Mass.
Quick, Alfred M., Baltimore, Md.

ELECTRICAL.

Arnold Co., The, Chicago, Ill.
Crockett-Wheeler Co., Ampere, N. J.
Hogue Engineering Ass'n., Charleston, W. Va.
Keitholtz, P. O., Baltimore, Md.
Levy-Morton Co., Columbus, Ga.
Lide, Martin J., Birmingham, Ala.
Moile H. E., New York, N. Y.
Rucker, B. Parks, Charlotte, N. C.
Stone & Webster Engr. Corp., Boston, Mass.
Tucker & Laxton, Charlotte, N. C.
White, Gilbert C., Charlotte, N. C.

ELECTRIC LIGHT AND POWER PLANTS.

Dabney Engineering Co., Memphis, Tenn.
Ford, Bacon & Davis, New York, N. Y.
Graves Engineering Co., Inc., New York, N. Y.
Keitholtz, P. O., Baltimore, Md.
Kelly, Thos. C., Cincinnati, Ohio.
Levy-Morton Co., Columbus, Ga.
Scotfield Engineering Co., Philadelphia, Pa.
Stone & Webster Engr. Corp., Boston, Mass.
White Companies, J. G., New York, N. Y.
White, Gilbert C., Charlotte, N. C.

GAS.

Ford, Bacon & Davis, New York, N. Y.
Renshaw & Breese, Huntington, W. Va.

GARBAGE DISPOSAL.

Haylis, John R., Birmingham, Ala.

GEOLOGICAL.

Brown & Clarkson, Washington, D. C.
Davis, Geo. O., Philadelphia, Pa.
Frothing & Robertson, Richmond, Va.
Grimley, G. P., Martinsburg, W. Va.
Hogue Engineering Ass'n., Charleston, W. Va.
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Engineers.

MECHANICAL.

Arnold Co., The, Chicago, Ill.
Kent, Inc., Robert Sayre, Brooklyn, N. Y.
Kelly, Thos. C., Cincinnati, Ohio.
Lide, Martin J., Birmingham, Ala.
McLundie, A. S., Chattanooga, Tenn.
Stevens, Harry, Washington, D. C.
Tucker & Laxton, Charlotte, N. C.

MINING.

Brown & Clarkson, Washington, D. C.
Grimsley & P. Martin, New York, N. Y.
Horne Engineering Ass'n, Charleston, W. Va.
Jones, E. M., Pittsboro, Tenn.
Renshaw & Breese, Huntington, W. Va.

MUNICIPAL.

Anderson & Christie, Charlotte, N. C.
Blair & Drane, Charlotte, N. C.
Brown & Clarkson, Washington, D. C.
Crosby, Walter W., Baltimore, Md.
Dabney Engineering Co., Memphis, Tenn.
Elrod, Henry E., Dallas, Texas.
Graves Engineering Co., Inc., New York, N. Y.
Greiner & Whitman, Baltimore, Md.
Hogge Engineering Ass'n, Charleston, W. Va.
Knowles, Morris, Pittsburgh, Pa.
McCrady Bros. & Cheves, Inc., Charleston, S. C.
McCrady Co., J. B., Atlanta, Ga.
Paw, Arthur, Atlanta, Ga.
Shand Engineering Co., Columbia, S. C.
Walker Engineering Corp., Tampa, Fla.
White, Gilbert C., Charlotte, N. C.

PAVING AND ROAD.

Anderson & Christie, Charlotte, N. C.
Atlantic Engineering Co., Savannah, Ga.
Blair & Drane, Charlotte, N. C.
Bryant, Glauco A., Wilson, N. C.
Crosby, Walter W., Baltimore, Md.
Elrod, Henry E., Dallas, Texas.
Institute of Industrial Research, Washington, D. C.
McCrady Bros. & Cheves, Inc., Charleston, S. C.
Shand Engineering Co., Columbia, S. C.
Walker Engineering Corp., Tampa, Fla.
White, Gilbert C., Charlotte, N. C.

PUBLIC SERVICE PROPERTIES.

Day & Zimmerman, Philadelphia, Pa.
Ferree Co., The, H. G., Memphis, Tenn.
Ford, Bacon & Davis, New York, N. Y.
Gilman, Harry L., Boston, Mass.
Graves Engineering Co., Inc., New York, N. Y.
Maxey, John Wharton, Houston, Tex.
Scotfield Engineering Co., Philadelphia, Pa.
Stone & Webster Eng'g. Corp., Boston, Mass.
White Companies, J. G., New York, N. Y.

REINFORCED CONCRETE. (Bridges, Buildings, etc.)

Cunningham Construction Co., Shreveport, La.
Foster-Creighton-Gould Co., Nashville, Tenn.
Guarantee Construction Co., New York, N. Y.
Interstate Const. Co., Louisville, Ky.
Luten, Daniel B., Indianapolis, Ind.
Potter, Alexander, New York, N. Y.
Requarth Co., C. W., Charlotte, N. C.
Savannah Eng. & Construction Co., Savannah, Ga.
Spiker, William C., Atlanta, Ga.
Tucker & Laxton, Charlotte, N. C.
White Companies, J. G., New York, N. Y.

RIVER AND HARBOR.

Gilman, Harry L., Boston, Mass.

SEWERAGE AND WATER-WORKS.

Anderson & Christie, Charlotte, N. C.
Baylin, John R., Birmingham, Ala.
Blair & Drane, Charlotte, N. C.
Brown & Clarkson, Washington, D. C.
Bryant, Glauco A., Wilson, N. C.
Dabney Engineering Co., Memphis, Tenn.
Ford, Bacon & Davis, New York, N. Y.
Graves Engineering Co., Inc., New York, N. Y.
Greiner & Whitman, Baltimore, Md.
Hill, Nicholas S., Jr., and S. F. Ferguson, New York, N. Y.
Knowles, Morris, Pittsburgh, Pa.
Maxey, John Wharton, Houston, Tex.
Mayer, J. H., Birmingham, Ala.
Miller, Hiram Allen, Boston, Mass.
Myers, E. W., Greensboro, N. C.
Paw, Arthur, Atlanta, Ga.
Potter, Alexander, New York, N. Y.
Quick, Alfred M., Baltimore, Md.
Stevens, Harry, Washington, D. C.
Walker Engineering Corp., Tampa, Fla.
White Companies, J. G., New York, N. Y.
White, Gilbert C., Charlotte, N. C.

STEEL WORK AND ROLLING MILLS.

Smythe Co., The S. R., Pittsburgh, Pa.

STRUCTURAL STEEL.

Foster-Creighton-Gould Co., Nashville, Tenn.
Shearer, O. E., Memphis, Tenn.
Renshaw & Breese, Huntington, W. Va.

THEATRE CONSTRUCTION.

Gatlin, W. R., Hopkinsville, Ky.

Engines.

COMPRESSED AIR.

Dake Engine Co., Grand Haven, Mich.

GAS AND GASOLINE.

Affiliated Manufacturers Co., Milwaukee, Wis.
Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
Cooper Co., C. & G., Mt. Vernon, Ohio.
Gibbs Machinery Co., Inc., Columbia, S. C.
Heer Engine Co., Portsmouth, Ohio.
Mietz, A., New York, N. Y.
Southern Engine & Boiler Works, Jackson, Tenn.
Van Duzen, Roys Co., The, Columbus, O.
Westinghouse Machine Co., The, Pittsburgh, Pa.

OIL.

Bolinders Co., New York, N. Y.
Chicago Pneumatic Tool Co., Chicago, Ill.
Fairbanks-Morse & Co., Atlanta, Ga.
Heer Engine Co., Portsmouth, Ohio.
Mietz, A., New York, N. Y.
Snow Steam Pump Works, The, New York, N. Y.

STEAM.

Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
American Hoist & Derrick Co., St. Paul, Minn.
Ball Engine Co., Erie, Pa.
Buffalo Forge Co., Buffalo, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Cooper Co., C. & G., Mt. Vernon, Ohio.
Dake Engine Co., Grand Haven, Mich.
Engberg Electric & Mechanical Works, St. Joseph, Mo.
Gibbs Machinery Co., Inc., Columbia, S. C.
Griffith & Wedge Co., The, Zanesville, O.
Harris Bros. Co., Chicago, Ill.
Houston, Stanwood & Gamble Co., Cincinnati, O.
Jeffrey-Griner Machinery Co., Philadelphia, Pa.
Lefell & Co., Janesville, Springfield, O.
Lombard Iron Works, Augusta, Ga.
Mackelburg Iron Works, Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Phoenix Iron Works Co., Meadville, Pa.
Schofield Iron Works, Macon, Ga.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.
Viller Mfg. Co., Milwaukee, Wis.
Westinghouse Machine Co., Pittsburgh, Pa.

Envelopes.

Young & Selden Co., Baltimore, Md.

Excavating Machinery.

American Clay Machinery Co., The, Bucyrus, Ohio.
American Steel Dredge Co., Fort Wayne, Ind.
Bay City Dredge Works, Bay City, Mich.
Byers Mach. Co., The John F., Ravenna, O.
Fairbanks Steam Shovel Co., Marion, O.
Gade Excavating Co., Iowa Falls, Iowa.
Hayward Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Keystone Drill & Equipment Co., Beaver Falls, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Marion Steam Shovel Co., Marion, O.
Monaghan Machine Co., Chicago, Ill.
Morris Machine Works, Baldwinville, N. Y.
National Hoisting Engine Co., Harrison, N. J.
The Automatic Shovel Co., Lorain, Ohio.
Williams Co., The C. H., Cleveland, O.

Excavators. (Trench.)

Bay City Dredge Works, Bay City, Mich.
Fairbanks Steam Shovel Co., Marion, O.
Gade Excavating Co., Iowa Falls, Iowa.
Hayward Co., The, New York, N. Y.
Monaghan Machine Co., Chicago, Ill.

Excelsior Machinery.

Kline, Lewis T., Alpena, Mich.

Exhaust Heads.

American Spiral Pipe Works, Chicago, Ill.

Exhibits. (Machinery Builders' Equipment and Supplies.)

Builders' Exchange, Baltimore, Md.

Expansion Joints.

Hadger & Sons Co., E. B., Boston, Mass.

Expanded Metal. (See Lath.)

Explosives.

Du Pont De Nemours Powder Co., E. I., Wilmington, Del.
Keystone Nat'l Powder Co., Emporium, Pa.

Export Agents. (South America.)

Lutz, Friedr. W., Richmond, Va.

Factory Sites. (Town and Railroad.) (See Industrial, Agricultural and Commercial Opportunities.)

Fans. (Electric.)

General Electric Co., Schenectady, N. Y.

Robbins & Myers Co., Springfield, O.

Fans. (Ventilating.) (See Blowers, Exhaust Fans.)

Fastener Driving Machine. (Corrugated Joint.)

Saracine Machine Co., Benton Harbor, Mich.

Feed-Water Heaters and Purifiers.

American Water Softener Co., Philadelphia, Pa.
Blake & Knowles Steam Pump Works, East Cambridge, Mass.
Murray Iron Works Co., Burlington, Ia.
National Pipe Bending Co., New Haven, Conn.
Scaife & Sons Co., Wm. B., Pittsburgh, Pa.
Stewart Heater Co., Buffalo, N. Y.

Feed-Water Heater and Purifier and Oil Separator Combined.

Blake & Knowles Steam Pump Works, East Cambridge, Mass.

Stewart Heater Co., Buffalo, N. Y.

Felt. (Building, Sheathing.)

Barrett Mfg. Co., Philadelphia, Pa.

Fencing. (Woven Wire Field.)

American Steel & Wire Co., Chicago, Ill.

Gulf States Steel Co., Birmingham, Ala.

Fencing, Entrance Gates. (Iron, Steel, Wire.)

American Steel & Wire Co., Chicago, Ill.
Boiles Iron & Wire Wks., J. E., Detroit, Mich.
Dow Wire & Iron Works, Louisville, Ky.
Dufur & Co., Baltimore, Md.
New Jersey Wire Cloth Co., Trenton, N. J.
Ohio Elevator & Mach. Co., The, Columbus, O.

Fertilizer Machy. (See also Phosphate Machy.)

Stedman's Foundry & Machine Works, Aurora, Ind.
Valk & Murdoch Iron Works, Charleston, S. C.

Fibre. (Vulcanized.)

Continental Fibre Co., Newark, Del.

Files.

Barnett Co., G. & H., Philadelphia, Pa.

Nicholson File Co., Providence, R. I.

Filters. (Water, for Domestic and Industrial Purposes.)

American Water Softener Co., Philadelphia, Pa.
International Filter Co., Chicago, Ill.
New York Con. Jewell Fil. Co., New York, N. Y.

Fire Clay. (See Brick, Fire.)

Richmond Safety Gate Co., Richmond, Ind.

Victor Mfg. Co., Newburyport, Mass.

Fire Extinguishers.

Badger & Sons Co., E. B., Boston, Mass.

Fire Escapes.

Boiles Iron & Wire Works, J. E., Detroit, Mich.

Chesapeake Iron Works, Baltimore, Md.

Fire Places. (Brick and Tile.)

Hood Brick Co., B. Mifflin, Atlanta, Ga.

Fireproof Building Construction. (See Concrete Construction.)

Fireproof Building Material.

Hannon Pipe Co., P., Louisville, Ky.
Johns-Manville Co., H. W., New York, N. Y.

Fireproof Doors and Shutters.

Kinnear Mfg. Co., Columbus, O.

Richmond Safety Gate Co., Richmond, Ind.

Victor Mfg. Co., Newburyport, Mass.

Wagner's Sons Co., J. F., Louisville, Ky.

Fireproof Windows. (See Window Frames and Sashes (Fireproof).)

Fittings. (Wire Rope.)

Waterbury Co., New York, N. Y.

Fireproofing. (Brick and Tile.)

Hood Brick Co., B. Mifflin, Atlanta, Ga.

Fixtures. (Electric Lighting.)

Hill & Co., Walter E., Baltimore, Md.

Flanges. (Iron and Steel.)

American Cast Iron Pipe Co., Birmingham, Ala.
American Pipe & Construction Co., Phila., Pa.
American Spiral Pipe Works, Chicago, Ill.
Dart Mfg. Co., E. M., Providence, R. I.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
National Tube Co., Pittsburgh, Pa.
U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.
Wood & Co., R. D., Philadelphia, Pa.

Flare Lamps.

Frest-O-Lite Co., Inc., The, Indianapolis, Ind.

Flexible Joints.

Moran Flex. Steam Joint Co., Inc., Louisville, Ky.

Floor Tiles.

Northcross Mantel Co., W. J., Memphis, Tenn.

Flooring. (Crescoted Block.)

Republic Crescoting Co., Indianapolis, Ind.

Flooring. (Hardwood, Maple, Oak.)

Whiting, William B., Asheville, N. C.

Flour and Grist Mill Machinery and Supplies.

Caldwell & Sons Co., H. W., Chicago, Ill.
Salem Foundry & Machine Works, Salem, Va.
Starr Co., B. F., Baltimore, Md.
Wolf Co., Chambersburg, Pa.

Flue Lining.

Owensboro Sewer Pipe Co., Owensboro, Ky.

Southern Sewer Pipe Co., Birmingham, Ala.

Forges.

Buffalo Forge Co., Buffalo, N. Y.

Forgings.

Weimer Chain & Iron Co., Lebanon, Pa.

Foundations. (Waterproof.)

Requarth Co., C. W., Charlotte, N. C.

Foundry Equipment and Supplies.

Newport Sand Bank Co., Inc., Newport, Ky.
Paxon Co., J. W., Philadelphia, Pa.

Foundry Facings. (Talc and Soapstone.)

Georgia Talc Co., Asheville, N. C.

Foundry and Machine Shops.

Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Goldens Foundry & Machine Wks., Columbus, Ga.
Grainier & Co., Louisville, Ky.
Lombard Iron Works, Augusta, Ga.
Titus, E. E., Petersburg, Va.
Valk & Murdoch Iron Works, Charleston, S. C.

Frogs. (See Railroad Frogs and Switches.)

Fuel Economizers.

Green Fuel Economizer Co., Matteawan, N. Y.

Sturtevant Co., B. F., Hyde Park, Boston, Mass.

Fuel Oil.

Gulf Refining Co., Pittsburg, Pa.

U. S. Asphalt Refining Co., New York, N. Y.

Furnaces. (For Industrial Purposes.)

Smythe Co., The S. R., Pittsburgh, Pa.

Fuses. (Electrical.)

Economy Fuse & Mfg. Co., Chicago, Ill.

Fuse Shells. (Renewable.)

Economy Fuse & Mfg. Co., Chicago, Ill.

Fuses, Bases and Fittings.

Johns-Manville Co., H. W., New York, N. Y.

Galvanized Steel and Iron.

American Sheet & Tin Plate Co., Pittsburgh, Pa.
La Belle Iron Works, Steubenville, O.
McCalla, Inc., Harold, Philadelphia, Pa.
Portsmouth Steel Co., Portsmouth, O.
Wood Iron & Steel Co., Alan, Philadelphia, Pa.
Youngstown Steel & Tube Co., Youngstown, O.

Garage and House. (Portable.)

Dixie Cabinet & Metal Co., Atlanta, Ga.
Steel Products Co., The, Savannah, Ga.

Gas Blowers. (Turbine.)

Terry Steam Turbine Co., Hartford, Conn.

Gas Engines. (See Engines, Gas.)

Gas Machines.

Kemp Mfg. Co., O. M., Baltimore, Md.
Milburn Co., Alex. N., Baltimore, Md.

Gas Plants.

Power & Mining Machinery Co., Cudahy, Wis.
Western Gas Construction Co., Ft. Wayne, Ind.

Gas Producers.

Smythe Co., The S. R., Pittsburgh, Pa.
Westinghouse Machine Co., Pittsburgh, Pa.
Wood & Co., R. D., Philadelphia, Pa.

Gasoline and Kerosene.

Gulf Refining Co., Pittsburg, Pa.

Gas and Steam Fitters' Tools.

Saunders' Sons, D., Yonkers, N. Y.

Gears.

Caldwell & Sons Co., H. W., Chicago, Ill.
Crescent-Morris Co., Philadelphia, Pa.
James Mfg. Co., D. O., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.

Generating Sets.

Engberg Electric & Mechanical Works, St. Joseph, Mo.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.
Triumph Electric Co., Cincinnati, O.

Geologists.

Davis, Geo. O., Phila., Pa.
Frothing & Roberts, Richmond, Va.
Grimsley, G. P., Martinsburg, W. Va.

Glass. (Plate, etc.)

Binswanger & Co., Memphis, Tenn.

Governors. (Steam Engine.)

Pickering Governor Co., Portland, Conn.

Grain Elevator Supplies.

Caldwell & Sons Co., H. W., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Co., Nicetown (Philadelphia), Pa.

Granite.

Southern Marble & Granite Co., Spartanburg, S. C.

Graphite.

Dixon Crucible Co., Joseph, Jersey City, N. J.

Grates and Grate Bars.

Huber Grate Bar & Stoking Co., Baltimore, Md.
Thomas Grate Bar Co., Birmingham, Ala.

Gravel.

Arundel Sand & Gravel Co., Baltimore, Md.

Gravel. (Roofing and Road)

American Ballast Co., Knoxville, Tenn.

Gravity Spiral Chutes.

Mathews Gravity Carrier Co., Ellwood City, Pa.

Grease.

Albany Lubricating Co., New York, N. Y.

Grease Cups.

Albany Lubricating Co., New York, N. Y.

Lukenheimer Co., The, Cincinnati, O.

Greases and Lubricating Compounds.

Albany Lubricating Co., New York, N. Y.
Gale's Signal Oil Co., Franklin, Pa.
Robinson & Son Co., Wm. C., Baltimore, Md.

Grinders. (Gypsum, Limestone, etc.)

Stedman's Foundry & Machine Wks., Aurora, Ind.

Grinding Wheels.

Carborundum Co., Niagara Falls, N. Y.
Vitrified Wheel Co., Westfield, Mass.

Groovers.

Hulth Bros. Saw Mfg. Co., Inc., Rochester, N. Y.

Industrial Track Work. [See Railways, Ind.]**Injectors.**

Jenkins Bros., New York, N. Y.
Lankenheimer Co., The, Cincinnati, O.
Sellers & Co., Inc., Wm., Philadelphia, Pa.

Insulated Wires and Cables.

Safety Insulated Wire & Cable Co., New York, N. Y.

Insulating Materials.

Continental Fibre Co., Newark, Del.
General Electric Co., Schenectady, N. Y.
John-Manville Co., H. W., New York, N. Y.

Insurance.

Hartford Steam Boiler Inspector & Insurance Co., Hartford, Conn.

Iron.

Allegheny Steel Co., Pittsburgh, Pa.
La Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
Tennessee Coal, Iron & R. Co., Birmingham, Ala.
Union Iron Works, San Francisco, Cal.
Wood Iron & Steel Co., Beaver Falls, Pa.

Irrigation Machinery.

Cameron Steam Pump Wks., A. S. New York, N. Y.

Investment Securities.

Provident Savings Bank & Trust Co., Cincinnati, Ohio.

Kettles. (Steam Jacket.)

Badger & Sons Co., E. B., Boston, Mass.

Key Seater. (Portable.)

Barr & Son, John T., Brooklyn, N. Y.

Knitting Machinery.

Acme Knitting Mch. & Needle Co., Franklin, N. H.

Labor Agency.

Diamond Labor Agency, Chicago, Ill.

Lace Leather.

Graton & Knight Mfg. Co., Worcester, Mass.

Lamps. (Arc and Incandescent.)

Boston-Economy Lamp Division, Danvers, Mass.
General Electric Co., Schenectady, N. Y.
Lee Electric Co., Baltimore, Md.
Piedmont Electric Co., Asheville, N. C.

Lamps. (Carbon and Tungsten.)

Newman Electric Lamp Co., Cincinnati, O.

Lamp Posts. (Electric, Gas.)

Western Gas Construction Co., Ft. Wayne, Ind.

Lands. (Mineral, Timber, Farm, etc.) [See Industrial, Agricultural and Commercial Opportunities.]**Landscape Architects. (See Engineers.) [Landscapes.]****Lathe Attachment. (Combination)**

Garrett Attachment Co., Nashville, Tenn.

Lathes. (Engine.)

Greaves, Klusman Tool Co., The, Cincinnati, O.

Lawn Furniture. (Wire.)

Bolles Iron & Wire Works, J. E., Detroit, Mich.

Dufar & Co., Baltimore, Md.

Dufar, Baggett & Co., Baltimore, Md.

Leadite.

Leadite Co., Inc., The, Philadelphia, Pa.

Lights. (Portable Acetylene.)

Milburn Co., Alex. N., Baltimore, Md.

Liquor Filters.

International Filter Co., Chicago, Ill.

Lithographers, Engravers.

Young & Selden Co., Baltimore, Md.

Lockers (Steel)

Bernstein Mfg. Co., Phila., Pa.

Reighley Metal Ceiling Mfg. Co., S., Pittsburgh, Pa.

Merritt & Co., Camden, N. J.

Van Hurlingen, J. M., Atlanta, Ga.

Locomotives.**INDUSTRIAL.**

Baldwin Locomotive Wks., The, Philadelphia, Pa.

Olmax Mfg. Co., Corry, Pa.

Ord, Geo. B., Cincinnati, O.

Davenport Locomotive Works, Davenport, Ia.

Jeffrey Mfg. Co., Columbus, O.

Lima Locomotive Corporation, Lima, O.

Porter Co., H. K., Pittsburgh, Pa.

Southern Iron & Equipment Co., Atlanta, Ga.

RAILWAY.

Baldwin Locomotive Wks., The, Philadelphia, Pa.

Lima Locomotive Corporation, Lima, O.

Porter Co., H. K., Pittsburgh, Pa.

Looms and Weaving Machinery.

Draper Co., Hopedale, Mass.

Naco Machine Works, Taunton, Mass.

Saco-Lowell Shops, Boston, Mass.

Loom Harness.

American Supply Co., Providence, R. I.

Lubricants.

Albany Lubricating Co., New York, N. Y.

Ohio Elevator Co., New York, N. Y.

Lubricants. (Graphite.)

Dixon Crucible Co., Joseph, Jersey City, N. J.

Lumber.

Industrial Lumber Co., Elizabeth, La.

Lumber. (Crescote.)

American Crescote Works, New Orleans, La.

Lumber. (Heavy Construction, Pitch Pine, etc.)

Industrial Lumber Co., Elizabeth, La.

National Lumber & Creosote Co., Texarkana, Ark.

Lumber Buggies.

Sole Steam Feed Works -Meridian, Miss.

Lumber Stackers.

Sole Steam Feed Works, Meridian, Miss.

Machinery. (Special.)

Bliss Co., E. W., Brooklyn, N. Y.

Bliss, Lewis T., Alpena, Mich.

Continental Machine Co., Baltimore, Md.

Machinery and Supplies. (New and Second-Hand Bargains.)

Asset Purchasing Co., Wheeling, W. Va.

Bailey & James Boiler & Mch. Co., Joplin, Mo.

Boston Iron & Metal Co., Baito., Md.

Cleveland Belting & Machinery Co., Cleveland, O.

Consolidated Iron & Metal Co., Chattanooga, Tenn.

Danzels & Son, New York, N. Y.

Harris Bros. Co., Chicago, Ill.

Hyde Bros. Steel & Rail Co., Pittsburgh, Pa.

Jeffrey-Griner Machinery Co., Philadelphia, Pa.

Lehman, Charles T., Birmingham, Ala.

Lodge & Shipley Mach. Tool Co., Cincinnati, O.

Marine Metal & Supply Co., New York, N. Y.

Moore & Co., Edgar M., Pittsburgh, Pa.

New River Co., Macdonald, W. Va.

Nussbaum & Co., V. M., Fort Wayne, Ind.

Planmuller Engineering Co., Chicago, Ill.

Power Equipment Co., New York, N. Y.

Prentiss Tool & Supply Co., New York, N. Y.

Randle Machinery Co., Cincinnati, O.

Read Co., Howard W., Philadelphia, Pa.

Sachsenmaier & Co., George, Philadelphia, Pa.

Sawyer, Frank, Philadelphia, Pa.

Seyfert's Sons, Inc., L. E., Philadelphia, Pa.

Southern Mchry. Exchange, Jacksonville, Fla.

South Side Fdry & Mch. Co., Charleston, W. Va.

Stewart, Paul, Cincinnati, O.

Tamper Machinery Exchange, Tampa, Fla.

Thaw & Williams, Cincinnati, O.

Toomey, Frank, Inc., Philadelphia, Pa.

Wilson Machy. Co., Harold, R., St. Louis, Mo.

Winterer Co., Herman L., Philadelphia, Pa.

Machine Tools.

Garrett Attachment Co., Nashville, Tenn.

Greaves, Klusman Tool Co., The, Cincinnati, O.

Machinists. (Engineers.)

Universal Machine Co., Baltimore, Md.

Magnesite Materials.

John-Manville Co., H. W., New York, N. Y.

Magnetic Separators.

Buchanan & Co., Inc. C. G., New York, N. Y.

Faxon Co., J. W., Philadelphia, Pa.

Mail Chutes.

Cutler Mail Chute Co., Rochester, N. Y.

Mantels. (Tile.)

Northcross Mantel Co., W. J., Memphis, Tenn.

Mantels. (Wooden.)

Northcross Mantel Co., W. J., Memphis, Tenn.

Mechanical Draft.

Buffalo Forge Co., Buffalo, N. Y.

Sturtevant Co., H. F., Hyde Park, Boston, Mass.

Metal Ceilings. [See Ceilings, Metal.]**Metaline.**

Metaline Co., Long Island City, N. Y.

Metal. (For Tanks, Culverts, Roofing, etc.)

Portsmouth Steel Co., Portsmouth, O.

Metal Culverts. [See Culverts.] (Corrugated Metal.)**Metal Shingles. [See Shingles.] (Metal.)****Metal Window Frames and Sash. [See Window Frames and Sash.] (Fireproof.)****Metal Work. [See Sheet Metal Work.]****Metal-Working Machinery. (Sheet.)**

Bliss Co., E. W., Brooklyn, N. Y.

Meters. (Water.)

Alberger Pump & Condenser Co., New York, N. Y.

Meter Boxes, Couplings, Gauges. (Water.)

Clark Co., H. W., Mattoon, Ill.

Micrometers, Calipers, etc.

Starrett Co., L. S., Athol, Mass.

Milk Filters. (Liquor, Milk, etc.)

International Filter Co., Chicago, Ill.

Mill Engineers and Architects.

O'Brian, W. C., Memphis, Tenn.

Sirrine, J. E., Greenville, S. C.

Mill Supplies.

Bailey-Lobby Co., Charleston, S. C.

Cameron & Barkley Co., Charleston, S. C.

Gainesville Iron Works, Gainesville, Ga.

Lombard Iron Works, Augusta, Ga.

Lunkenheimer Co., The, Cincinnati, O.

McKenzie Iron Works, Charlotte, N. C.

Salem Foundry & Machine Wks., Salem, Va.

Starr Co., B. F., Baltimore, Md.

Wolf Co., Chambersburg, Pa.

Mining Machinery. (Gold, Copper, Plate, etc.)

Bartlett & Snow Co., C. O., Cleveland, O.

Jeffrey Mfg. Co., Columbus, O.

McLannan-Stone Mach. Co., Hollidaysburg, Pa.

McKenzieburg Iron Works, Charlotte, N. C.

Raymond Bros. Impact Pulv. Co., Chicago, Ill.

Mixers. (Concrete.)

Blystone Mfg. Co., Cambridge Springs, Pa.

Standard Scale & Supply Co., Pittsburgh, Pa.

Van Duzens, Roys Co., The, Columbus, O.

Mixing Machinery.

Dunning, W. D., Syracuse, N. Y.

Mortar Colors.

Chattanooga Paint Co., Chattanooga, Tenn.

Motor Trucks. (Electric.)

General Vehicle Co., Long Island City, N. Y.

Motor Trucks. (Gasoline.)

White Co., The, Cleveland, O.

Motor Trucks. (Second Hand.)

Mar-Del Mobile Co., Baltimore, Md.

Municipal Castings.

Clarksville Fdry. & Mach. Works, Clarksville, Tenn.

Music Wire.

American Steel & Wire Co., Chicago, Ill.

Waterbury Co., The, New York, N. Y.

Nails. (Cut.)

La Belle Iron Works, Steubenville, O.

Nails and Spikes.

La Belle Iron Works, Steubenville, Ohio.

Republic Iron & Steel Co., Youngstown, O.

Youngstown Sheet & Tube Co., Youngstown, O.

Nuts. [See Bolts, Nuts, Rivets, etc.]

Office Furniture (Steel)

Merritt & Co., Camden, N. J.

Oil. (Crescote.)

Barrett Mfg. Co., Philadelphia, Pa.

Oils. (Lubricating, Etc.)

Albany Lubricating Co., New York, N. Y.

Galena Signal Oil Co., Franklin, Pa.

Gulf Refining Co., Pittsburgh, Pa.

Robinson & Son Co., Wm. C., Baltimore, Md.

Oil Cans.

Wall Mfg. Supply Co., P., Allegheny, Pa.

Oil Engines. [See Engines (Oil).]

Oil Separators.

Stewart Heater Co., Buffalo, N. Y.

Oil Well Machinery.

Keystone Steam Well Mach. Co., Beaver Falls, Pa.

Williams Bros., Itasca, N. Y.

Oil Well Tubing and Casing.

Ryers Co., A. M., Pittsburgh, Pa.

Ore Handling Machinery. [See Coal Handling Machinery.]**Ornamental Iron Works.**

Bolles Iron & Wire Wks., J. E., Detroit, Mich.

Cheesapeake Iron Works, Baltimore, Md.

Cincinnati Mfg. Co., Cincinnati, O.

Dow Wire & Iron Works, Louisville, Ky.

Ohio Elevator & Mach. Co., The, Columbus, O.

Schrieber & Sons Co., The, Cincinnati, O.

Snead Architectural Iron Works, Louisville, Ky.

Oxygen.

International Oxygen Co., New York, N. Y.

Oxygen Generators.

International Oxygen Co., New York, N. Y.

Oxy-Acetylene Welding and Cutting Outfit and Supplies.

International Oxygen Co., New York, N. Y.

Milburn Co., Alex. N., Baltimore, Md.

Packing. (Asbestos, Metallic, Rubber, Leather, etc.)

Graton & Knight Mfg. Co., Worcester, Mass.

Jenkins Bros., New York, N. Y.

John-Manville Co., H. W., New York, N. Y.

Power Specialty Co., New York, N. Y.

United Lead Co., New York, N. Y.

Packing. (Lead Wool.)

United Lead Co., New York, N. Y.

Paint. (Cement Floors, Masonry, Stucco, etc.)

Cheesman & Elliott, New York, N. Y.

Paint. (Metal Surfaces.)

Cheesman & Elliott, New York, N. Y.

Dixon Crucible Co., Joseph, Jersey City, N. J.

Paint. (Roofing, Building, etc.)

Cameron & Barkley Co., Charleston, S. C.

Chattanooga Paint Co., Chattanooga, Tenn.

Cheesman & Elliott, New York, N. Y.

Paper. (Roofing, Building, Sheeting, etc.)

Barrett Mfg. Co., Philadelphia, Pa.

CLASSIFIED INDEX OF ADVERTISEMENTS.

Pulverizers.

Aiting Engineering Co., J. R., New York, N. Y.
Austin Mfg. Co., Chicago, Ill.
Gruendler Pat. Crusher & Pulv. Co., St. Louis, Mo.
Jeffrey Mfg. Co., Columbus, O.
McLannan-Stone Mach. Co., Hollidaysburg, Pa.
Raymond Bros., Impact Pulv. Co., Chicago, Ill.
Stedman's Foundry & Machine Wks., Aurora, Ind.
Western Wheel Scraper Co., Aurora, Ill.

Pumping Machinery.

Affiliated Manufacturers Co., Milwaukee, Wis.
Alberger Pump & Condenser Co., New York, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Cook, A. D., Lawrenceburg, Ind.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Deane Steam Pump Co., Holyoke, Mass.
Erie Pump & Equipment Co., Erie, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
Holland Machine Co., New York, N. Y.
Keystone Pump & Well Engine Co., Beaver Falls, Pa.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Morris Machine Works, Baldwinville, N. Y.
Myers & Bros., F. E., Ashland, O.
Sydnor Pump & Well Co., Inc., Richmond, Va.
Wood & Co., R. D., Philadelphia, Pa.
Worthington, Henry R., Harrison, N. J.

Pumps. (Air.)

Blakeslee Mfg. Co., Du Quoin, Ill.

Pumps. (Boiler Feed.)

Alberger Pump & Condenser Co., New York, N. Y.
Blakeslee Mfg. Co., Du Quoin, Ill.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Jeansville Iron Works Co., Hazleton, Pa.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Myers & Bros., F. E., Ashland, O.

Pumps. (Centrifugal.)

Alberger Pump & Condenser Co., New York, N. Y.
Buffalo Steam Pump Co., Buffalo, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Erie Pump & Equipment Co., Erie, Pa.
Holland Machine Co., New York, N. Y.
Jeansville Iron Works Co., Hazleton, Pa.
Morris Machine Works, Baldwinville, N. Y.
Pacific Flush Tank Co., New York, N. Y.
Wood & Co., R. D., Philadelphia, Pa.
Worthington, Henry R., Harrison, N. J.

Pumps. (Deep Well.)

Cameron Steam Pump Wks., A. S., New York, N. Y.
Goulds Mfg. Co., Seneca Falls, N. Y.
Holland Machine Co., New York, N. Y.
Keystone Pump & Well Engine Co., Beaver Falls, Pa.
Layne & Bowler Co., Houston, Tex.

Pumps. (Dredging.)

Buffalo Steam Pump Works, Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Erie Pump & Equipment Co., Erie, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
Holland Mch. Co., New York, N. Y.
Morris Machine Works, Baldwinville, N. Y.
Wood & Co., R. D., Phila., Pa.

Pumps. (Hydraulic.)

Buffalo Steam Pump Co., Buffalo, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Cardwell Machine Co., Richmond, Va.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Erie Pump & Equipment Co., Erie, Pa.
French Oil Mill Mchry. Co., The Piqua, O.
Holland Mch. Co., New York, N. Y.

Pumps. (Oil and Gasoline.)

Keystone Roller & Fdry. Co., Columbia, Pa.

Pumps. (Steam.)

Alberger Pump & Condenser Co., New York, N. Y.
Blake & Knowles Steam Pump Works, East Cambridge, Mass.
Blakeslee Mfg. Co., Du Quoin, Ill.
Buffalo Steam Pump Co., Buffalo, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Clayton Air Compressor Works, Cambridge, Mass.
Cook, A. D., Lawrenceburg, Ind.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Deane Steam Pump Co., Holyoke, Mass.
Fairbanks-Morse & Co., Atlanta, Ga.
Keystone Pump & Well Engine Co., Beaver Falls, Pa.
Murray Iron Works Co., Burlington, Ia.
Scranton Pump Co., Scranton, Pa.
Snow Steam Pump Works, The New York, N. Y.
Sydnor Pump & Well Co., Inc., Richmond, Va.
Worthington, Henry R., Harrison, N. J.

Pumps. (Trench.)

Affiliated Manufacturers Co., Milwaukee, Wis.

Pumps. (Turbine Driven.)

Starveant Co., R. F., Hyde Park, Boston, Mass.

Pumps. (Vacuum.)

Cameron Steam Pump Wks., A. S., New York, N. Y.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.

Pumps. (Water-works.)

Goulds Mfg. Co., Seneca Falls, N. Y.
Holland Mch. Co., New York, N. Y.

Pump Leathers.

Graton & Knight Mfg. Co., Worcester, Mass.

Punching and Shearing Machinery.

Siles Co., E. W., Brooklyn, N. Y.

Purchasing Agents.

U. S. Purchasing Corporation, New York, N. Y.

Racks (For Pattern Storage.)

Merritt & Co., Camden, N. J.

Railroads.

[See Industrial, Agricultural and Commercial Opportunities.]

Railroad Equipment and Supplies. (New and Second-hand.)

American Frog & Switch Co., Hamilton, O.
Bailey-Lobby Co., The, Cleveland, S. O.
Birmingham Rail & Loco. Co., Birmingham, Ala.
Cincinnati Frog & Switch Co., Cincinnati, O.
Curd, Geo. B., Cincinnati, O.
Fairbanks-Morse & Co., Atlanta, Ga.
Foster Co., L. B., Pittsburgh, Pa.
Georgia Car & Locomotive Co., Atlanta, Ga.
Hirsch Rolling Mill Co., St. Louis, Mo.
Hoffman & Co., Inc., R. O., Baltimore, Md.
Hyde, Chas., Pittsburgh, Pa.
Kilby Frog & Switch Co., Birmingham, Ala.
Macleary, J. H., Suffolk, Va.
National Steel Rail Co., St. Louis, Mo.
Newhall Eng. Co., Geo. M., Philadelphia, Pa.
Read Co., Howard W., Philadelphia, Pa.
Robinson & Orr, Pittsburgh, Pa.
Sherwood, E. O., New York, N. Y.
Southern Iron & Equipment Co., Atlanta, Ga.
Steel Rail Supply Co., The, New York, N. Y.
United States Rail Co., Cumberland, Md.
Weir Frog Co., Cincinnati, O.
Wilson & Co., E. H., Philadelphia, Pa.
Wilson Mach. Co., Harold R., St. Louis, Mo.
Zelicker Supply Co., Walter A., St. Louis, Mo.

Railroad Frogs & Switches.

American Frog & Switch Co., Hamilton, O.
Cincinnati Frog & Switch Co., Cincinnati, O.
Conley Frog & Switch Co., Memphis, Tenn.
Kilby Frog & Switch Co., Birmingham, Ala.

Newhall Engineering Co., Geo. M., Philadelphia, Pa.
Robinson & Orr, Pittsburgh, Pa.
Sweet's Steel Co., Williamsport, Pa.
Weir Frog Co., Cincinnati, O.

Rails. (Steel.)

Foster Co., L. B., Pittsburgh, Pa.
Frank, J. E., Atlanta, Ga.
Gulf States Steel Co., Birmingham, Ala.
Hirsch Rolling Mill Co., St. Louis, Mo.
Hoffman & Co., Inc., R. O., Baltimore, Md.
Hyde Bros. Steel & Rail Co., Pittsburgh, Pa.
Hyde, Chas., Pittsburgh, Pa.
Lackawanna Steel Co., Lackawanna, N. Y.
Levis & Co., Henry, Philadelphia, Pa.
Macleary, J. H., Suffolk, Va.
National Steel Rail Co., St. Louis, Mo.
Newhall Eng. Co., Geo. M., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Robinson & Orr, Pittsburgh, Pa.
Sherwood, E. O., New York, N. Y.
Southern Iron & Equipment Co., Atlanta, Ga.
Steel Rail Supply Co., The, New York, N. Y.
Sweet's Steel Co., Williamsport, Pa.
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.
United States Rail Co., Cumberland, Md.
Wilson & Co., E. H., Philadelphia, Pa.

Rail Braces, Crossings, etc. [See R. R. Frogs and Switches.]

Railings and Grilles. (Brass.)

Newman Mfg. Co., Cincinnati, O.

Railways. (Industrial.)

Chase Fdry. & Mfg. Co., Columbus, O.
Cincinnati Frog & Switch Co., Cincinnati, O.
Hunt Co., Inc., O. W., West New Brighton, N. Y.
Link-Belt Co., Nicetown (Philadelphia), Pa.

Rams. (Hydraulic.) [See Hydraulic Ram.]

Reamers.

Morse Twist Drill & Mch. Co., New Bedford, Mass.

Reeds.

American Supply Co., Providence, R. I.

Refrigerating Machinery and Apparatus.

Huetteman & Cramer Co., The, Detroit, Mich.
Remington Machine Co., Wilmington, Del.
Viller Mfg. Co., Milwaukee, Wis.
York Machine Co., Henry, Louisville, Ky.
York Mfg. Co., York, Pa.

Reinforcing Bars. [See Concrete Reinforcing Bars.]

Riveters. (Pneumatic.)

Independent Pneumatic Tool Co., Chicago, Ill.

Road Machinery.

Austin-Western Road Mch. Co., The, Chicago, Ill.
Buffalo Steam Roller Co., Buffalo, N. Y.
Erie Machine Shops, Erie, Pa.
Gallon Iron Works & Mfg. Co., The, Gallon, Ohio.
Holt Manufacturing Co., The, Peoria, Ill.
Huber Mfg. Co., The, Marion, Ohio.
Kelly Springfield Road Roller Co., Springfield, O.
The Automatic Shovel Co., Lorain, Ohio.
Universal Road Mch. Co., Kingston, N. Y.
Western Wheel Scraper Co., Aurora, Ill.
Wheeling Mold & Fdry. Co., Wheeling, W. Va.

Roadmaking Materials.

Barrett Mfg. Co., Philadelphia, Pa.
Standard Oil Co., Inc., Newark, N. J.
U. S. Asphalt Refining Co., New York, N. Y.

Road Binders

Barrett Mfg. Co., Phila., Pa.
Standard Oil Co., Newark, N. J.
U. S. Asphalt Refining Co., New York, N. Y.

Road Roller. (Steam.)

Austin-Western Road Mch. Co., The, Chicago, Ill.
Buffalo Steam Roller Co., Buffalo, N. Y.
Erie Machine Shops, Erie, Pa.
Huber Mfg. Co., The, Marion, Ohio.
Kelly Springfield Road Roller Co., Springfield, O.
Universal Road Mch. Co., Kingston, N. Y.

Road Oil.

Gulf Refining Co., Pittsburgh, Pa.
Standard Oil Co., Inc., Newark, N. J.
U. S. Asphalt Refining Co., New York, N. Y.

Road Preservatives.

Barrett Mfg. Co., Philadelphia, Pa.
Gulf Refining Co., Pittsburgh, Pa.
Standard Oil Co., Inc., Newark, N. J.
U. S. Asphalt Refining Co., New York, N. Y.

Road Scarifiers.

Buffalo Steam Roller Co., Buffalo, N. Y.
Gallon Iron Works & Mfg. Co., The, Gallon, Ohio.
Huber Mfg. Co., The, Marion, Ohio.

Rock Crushers. (See Crushers, Rock.)

Roller Covering Supplies.

American Supply Co., Providence, R. I.

Roofing. (Ready Prepared: Felt, Tar, Asbestos, Asphalt.)

American Sheet & Tin Plate Co., Pittsburgh, Pa.
Asbestos Protected Metal Co., Beaver Falls, Pa.
Asphalt Ready Roofing Co., New York, N. Y.
Barrett Mfg. Co., Philadelphia, Pa.
Cameron & Barkley Co., Charleston, S. C.
Chesapeake Roofing & Pipe Covering Co., Baltimore, Md.
John-Manville Co., E. W., New York, N. Y.

Roofing. (Metal Shingles.) [See Shingles, Metal.]

Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., The, Cincinnati, O.

Roofing. (Slate.)

East Bangor Consol. Slate Co., East Bangor, Pa.
Genuine Bangor Slate Co., Easton, Pa.
Johnson, E. J., New York, N. Y.

Roofing and Siding. (Metal.)

American Sheet & Tin Plate Co., Pittsburgh, Pa.
Asbestos Protected Metal Co., Beaver Falls, Pa.
Cameron & Barkley Co., Charleston, S. C.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., The, Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
Portsmouth Steel Co., Portsmouth, O.
Southern Sheet & Tin Plate Co., Ashland, Ky.
Steel Products Co., The, Savannah, Ga.
Tennessee Metal Culvert Co., Nashville, Tenn.
Youngstown Sheet & Tube Co., Youngstown, O.

Rope. (Manila, Sisal, Hemp, etc.)

Broderick & Bascom Rope Co., St. Louis, Mo.
Columbian Rope Co., Auburn, N. Y.
Waterbury Co., New York, N. Y.
Wood's Sons Co., T. B., Chambersburg, Pa.

Rope. (Wire.)

Broderick & Bascom Rope Co., St. Louis, Mo.
Hunt Co., Inc., C. W., West New Brighton, N. Y.
Waterbury Co., New York, N. Y.

Rope Drives.

Caldwell & Son, H. W., Chicago, Ill.
Creson-Morris Co., Philadelphia, Pa.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Waterbury Co., New York, N. Y.
Wood's Sons Co., T. B., Chambersburg, Pa.

Rubber Goods.

Electric Hose & Rubber Co., Wilmington, Del.
Eureka Fire Hose Mfg. Co., New York, N. Y.

Rules. (Steel.)

Lufkin Rule Co., Saginaw, Mich.
Starrett Co., L. S., Athol, Mass.

Safes and Vaults.

York Safe & Lock Co., York, Pa.

Sand.

Arundel Sand & Gravel Co., Baltimore, Md.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.

Sand. (Foundry.)

Newport Sand Bank Co., Inc., Newport, Ky.

Sap Stain Preventive.

Church & Dwight Co., New York, N. Y.

Sash Chain.

Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.

Saws.

Gerlach Co., Peter, Cleveland, O.
Hautler Bros. Saw Mfg. Co., Inc., Rochester, N. Y.
Knight Mfg. Co., Canton, O.
Sydnor Pump & Well Co., Inc., Richmond, Va.

Saws. (Band.)

Smith Machine Co., H. B., Smithville, N. J.

Saws. (Hack.)

Starrett Co., L. S., Athol, Mass.

Sawmill Dogs.

Soule Steam Feed Works, Meridian, Miss.

Sawmills.

Gainesville Iron Works, Gainesville, Ga.
Gibbes Machinery Co., Inc., Columbia, S. O.
Knight Mfg. Co., Canton, O.
Lane Mfg. Co., Montpelier, Vt.

Sawmill Machinery.

Bailey-Lobby Co., Charleston, S. O.
Cameron & Barkley Co., Charleston, S. O.
Chase Turbine Mfg. Co., Orange, Mass.
Knight Mfg. Co., Canton, O.
Lane Mfg. Co., Montpelier, Vt.
Mecklenburg Iron Works, Charlotte, N. C.
Schofield Iron Works, Macon, Ga.
Southern Engine & Boiler Wks., Jackson, Tenn.
Sydnor Pump & Well Co., Inc., Richmond, Va.

Saw Sharpeners.

Carborundum Co., Niagara Falls, N. Y.
Vitified Wheel Co., Westfield, Mass.

Saw Sharpeners and Files. (Gotton Gin.)

Carver Cotton Gin Co., East Bridgewater, Mass.

Sawing Outfits. (Contractors and Industrial.)

Rutland Foundry & Machine Co., Bennington, Vt.

Scales.

Standard Scale & Supply Co., Pittsburgh, Pa.

Screens. (Fly Window and Door.)

Cincinnati Mfg. Co., Cincinnati, O.
New Jersey Wire Cloth Co., Trenton, N. J.

Screens. (Mining, Stone, etc.)

Converse Co., Inc., F. S., Lestershire, N. Y.
Erdle Perforating Co., Rochester, N. Y.
Hendrick Mfg. Co., Carbondale, Pa.
Jeffrey Mfg. Co., Columbus, O.
McLannan-Stone Mach. Co., Hollidaysburg, Pa.
Munt & Sons, Charles, Jersey City, N. J.
New Jersey Wire Cloth Co., Trenton, N. J.

Screens. (For Concrete and Road Construction.)

American Ballast Co., Knoxville, Tenn.

Screws. (Machine.)

Progressive Mfg. Co., Torrington, Conn.

Screws. (Safety Set.)

Allen Manufacturing Co., Inc., Hartford, Conn.

Screw Machine Products.

Progressive Mfg. Co., Torrington, Conn.

Separators. (Dust.)

Buffalo Forge Co., Buffalo, N. Y.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.

Sewer Flushing Siphons.

Pacific Flush Tank Co., New York, N. Y.

Sewer Joint Compounds.

Pacific Flush Tank Co., New York, N. Y.

Sewer Pipe. (Vitified.)

Bannon Pipe Co., P., Louisville, Ky.
Blackmer & Post Pipe Co., St. Louis, Mo.
Cannelton Sewer Pipe Co., Cannelton, Ind.
Owensboro Sewer Pipe Co., Owensboro, Ky.
Pomona Terra-Cotta Co., Pomona, N. O.
Southern Sewer Pipe Co., Birmingham, Ala.
Stevens Sons Co., H., Macon, Ga.

Sewer Pipe and Drains. (Monolithic Concrete)

Requarth Co., O. W., Charlotte, N. C.

Sewer Supplies

Clarksville Fdry. & Mach. Works, Clarksville, Tenn.

Sewage Pumping and Disposal Apparatus.

Pacific Flush Tank Co., New York, N. Y.

Shafting. (Cold Rolled Steel.)

American Steel & Wire Co., Chicago, Ill.

Shafting. (Polished Steel.)

Jones & Laughlin Steel Co., Pittsburgh, Pa.
Medart Patent Pulley Co., St. Louis, Mo.
Pardee Works, O. Perth Amboy, N. J.
Republic Iron & Steel Co., Youngstown, O.
Union Drawn Steel Co., Beaver Falls, Pa.

Shafting. [See Pulleys, Shafting and Hangers.]

Sharpening Stones.

Carborundum Co., Niagara Falls, N. Y.
Vitified Wheel Co., Westfield, Mass.

Sheet Brass and Copper.

McKenna Bros. Brass Co., Pittsburgh, Pa.

Sheet Metal Work.

Atlas Metal Works, Dallas, Tex.
Danzon Metal Works, Hagerstown, Md.
Dixie Culvert & Metal Co., Atlanta, Ga.
Lone Star Culvert Co., Houston, Tex.
McMillan Bros., Jacksonville, Fla.
Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.
Salsbury Metal Culvert Co., Salsbury, N. O.
South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.
Steel Products Co., The, Savannah, Ga.
Tennessee Metal Culvert Co., Nashville, Tenn.
Virginia Metal & Culvert Co., Roanoke, Va.
Volgtmann & Co., Chicago, Ill.

Sheet Metal Working Machinery.

Bliss Co., E. W., Brooklyn, N. Y.

Sheet Steel and Iron.

American Sheet & Tin Plate Co., Pittsburgh, Pa.
Cincinnati Iron & Steel Co., Cincinnati, O.
La Belle Iron Works, Steubenville, O.
Portsmouth Steel Co., Portsmouth, O.
Republic Iron & Steel Co., Youngstown, O.
Southern Sheet & Tin Plate Co., Ashland, Ky.
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.
Wood Iron & Steel Co., Alan, Philadelphia, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

Shelving. [(Steel) Vault, Store, Etc.]

Merritt & Co., Camden, N. J.
Van Hurlingen, J. M., Atlanta, Ga.

Shingles. (Metal.)

Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
Southern Sheet & Tin Plate Co., Ashland, Ky.

Shop Furniture. (Steel.)

Merritt & Co., Camden, N. J.

Shovels. (Special for Any Purpose.)

Conneaut Shovel Co., The, Conneaut, Ohio.

Shovels. (Steel, Brass, Aluminum, etc.)

Conneaut Shovel Co., The, Conneaut, Ohio.

Shutters. (Iron.)

Holles Iron & Wire Works, J. E., Detroit, Mich.
Chesapeake Iron Works, Baltimore, Md.

Shutters. (Steel Rolling.)

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Steel Buildings. (Designers, Builders.)
 Amer. Bridge Co., of New York, N. Y.
 Belmont Iron Works, Philadelphia, Pa.
 Champion Bridge Co., Wilmington, O.
 Chesapeake Iron Works, Baltimore, Md.
 Des Moines Bridge & Iron Co., Des Moines, Ia.
 Phoenix Iron Co., Philadelphia, Pa.
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
 Richmond Structural Steel Co., Richmond, Va.
 Schreiber & Sons Co., The L., Cincinnati, O.
 Sneed Architectural Iron Works, Louisville, Ky.
 Turner, C. A. F., Minneapolis, Minn.
 Virginia Bridge & Iron Co., Roanoke, Va.

Steel Castings.
 Gracible Steel Castings Co., Lansdowne, Pa.
 Hoffman & Co., Inc., R. O., Baltimore, Md.
 Riverside Steel Casting Co., Newark, N. J.

Steel Plate Work.
 Casey-Hedges Co., Chattanooga, Tenn.
 Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
 Coatesville Boiler Works, Coatesville, Pa.
 Hoffman & Co., Inc., R. O., Baltimore, Md.
 Memphis Steel Construction Co., Memphis, Tenn.
 Phoenix Iron Co., Philadelphia, Pa.
 Struthers-Wells Co., Warren, Pa.

Steel Protector. (Concrete Curb, Steps, etc.)
 [See Curb Protector Steel.]

Steel Sheet Piling.
 Frank, J. E., Atlanta, Ga.
 Jones & Laughlin Steel Co., Pittsburgh, Pa.
 Lackawanna Steel Co., Lackawanna, N. Y.

Stencils.
 Baltimore Office Supply Co., Baltimore, Md.

Stills. (Turpentine.)
 McMillan Bros., Jacksonville, Fla.

Stirrups. (Building.)
 Chesapeake Iron Works, Baltimore, Md.

Stock Certificates, Bonds and Seals.
 Baltimore Office Supply Co., Baltimore, Md.

Stock Room Racks, Bins, Etc.
 Merritt & Co., Camden, N. J.

Stokers. (Hand.)
 Huber Grate Bar & Stoking Co., Baltimore, Md.

Stokers. (Mechanical.)
 Babcock & Wilcox Co., New York, N. Y.
 Westinghouse Machine Co., Pittsburgh, Pa.

Stone. (Building.)
 Atlantic Stone Co., Atlanta, Ga.
 Bedford Sand Stone Works, Bedford, Ind.
 Kirkpatrick Sand & Cement Co., Birmingham, Ala.

Stone. (Crushed.) [See Crushed Stone.]

Stone and Gravel Plants.
 Weller Mfg. Co., Chicago, Ill.

Storage Batteries.
 Elec. Storage Battery Co., The, Philadelphia, Pa.
 Westinghouse Machine Co., Pittsburgh, Pa.

Strapping Leather.
 Graton & Knight Mfg. Co., Worcester, Mass.

Structural Steel and Iron.
 Allegheny Steel Co., Pittsburgh, Pa.
 Amer. Bridge Co., of New York, N. Y.
 Belmont Iron Works, Philadelphia, Pa.
 Bourne-Fuller Co., The, Cleveland, Ohio
 Champion Bridge Co., Wilmington, O.
 Chesapeake Iron Works, Baltimore, Md.
 Chicago Bridge & Iron Works, Chicago, Ill.
 Cincinnati Iron & Steel Co., Cincinnati, O.
 Des Moines Bridge & Iron Co., Des Moines, Ia.
 Dietrich Bros., Baltimore, Md.
 East St. Louis Bridge Co., East St. Louis, Ill.
 Grainger & Co., Louisville, Ky.
 Greenspan's Sons Iron & Steel Co., Jos., St. Louis, Mo.

Stump Pullers.
 Zimmerman Steel Co., Lone Tree, Iowa

Sulphur.
 Union Sulphur Co., New York, N. Y.

Super-Heaters. (Steam.)
 Babcock & Wilcox Co., New York, N. Y.
 Power Specialty Co., New York, N. Y.

Surveying Instruments.
 Weber & Co., F., Philadelphia, Pa.

Swinging Engines.
 Dake Engine Co., Grand Haven, Mich.

Switchboards, Switches, etc.
 General Electric Co., Schenectady, N. Y.

Switches. [See Railroad Frogs and Switches.]

Switchstands.
 Weir Frog Co., Cincinnati, O.

Tackle Blocks. (For Wire or Manila Rope.)
 Broderick & Bascom Rope Co., St. Louis, Mo.

Talc and Soapstone Powders.
 Georgia Talc Co., Ashville, N. C.

Tanks. (Iron and Steel.)
 American Bridge Co., New York, N. Y.
 American Water Softener Co., Philadelphia, Pa.
 Caldwell Co., Inc., W. E., Louisville, Ky.
 Casey-Hedges Co., Chattanooga, Tenn.
 Chesapeake Iron Works, Baltimore, Md.
 Chicago Bridge & Iron Works, Chicago, Ill.
 Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
 Coatesville Boiler Works, Coatesville, Pa.
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 Barry Bros. Co., Newport, Ky.
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 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
 Schreiber & Sons Co., The L., Cincinnati, O.
 Struthers-Wells Co., Warren, Pa.
 Snyder Pump & Well Co., Inc., Richmond, Va.
 Tennessee Metal Culvert Co., Nashville, Tenn.
 Twin City Boiler Works, Bristol, Va.-Tenn.
 Virginia Bridge & Iron Co., Roanoke, Va.
 Walsh & Weidner Boiler Co., Chattanooga, Tenn.

Tanks. (Wood.)
 Caldwell Co., Inc., W. E., Louisville, Ky.
 Davis & Son, G. M., Palatka, Fla.
 Snyder Pump & Well Co., Inc., Richmond, Va.

Tapes. (Measuring.)
 Lufkin Rule Co., Saginaw, Mich.
 Starrett Co., L. S., Athol, Mass.

Telephones. (Supplies, Equipment.)
 Piedmont Electric Co., Asheville, N. C.
 Western Electric Co., New York, N. Y.

Telephone Service.
 American Telephone & Telegraph Co.

Tenoner. (Box and Crate.)
 Ghuse Turbine Mfg. Co., Orange, Mass.

Terra-Cotta. (Ornamental.)
 Atlanta Terra-Cotta Co., Atlanta, Ga.
 Maryland Terra-Cotta Co., Baltimore, Md.
 Pomona Terra-Cotta Co., Pomona, N. C.
 Southern Building Material Co., Norfolk, Va.
 Stevens' Sons Co., H., Macon, Ga.

Threshers.
 Cardwell Machine Co., Richmond, Va.

Tiering Machines. (Portable.)
 Economy Engineering Co., Chicago, Ill.

Tile (Drain)
 Oconee Brick & Tile Co., Milledgeville, Ga.

Tile (Interior)
 Amer. Enam. Brick & Tile Co., New York, N. Y.
 P & F Tile Co., Birmingham, Ala.

Tile. (Mantel and Promenade.)
 Hood Brick Co., B. Mifflin, Atlanta, Ga.

Tile (Structural)
 Oconee Brick & Tile Co., Milledgeville, Ga.

Timbers. (Crossed.)
 American Creosote Works, New Orleans, La.
 Republic Creosoting Co., Indianapolis, Ind.

Tin and Terne Plates.
 American Sheet & Tin Plate Co., Pittsburgh, Pa.

Tobacco Machinery.
 Buckeye Iron & Brass Works, Dayton, O.
 Cardwell Machine Co., Richmond, Va.

Transformers.
 Crocker-Wheeler Co., Amper, N. J.
 Triumph Electric Co., Cincinnati, O.

Trench Excavator. [See Excavator (Trench).]

Trucks. (Dry Kiln.)
 Moore Dry Kiln Co., L., Jacksonville, Fla.

Trucks. (Platform, Freight, Mill, Factory, etc.)
 Bernstein Mfg. Co., Phila., Pa.
 Chase Fdry. & Mfg. Co., Columbus, O.

Trucks. (Storage Battery Auto.)
 Westinghouse Machine Co., Pittsburgh, Pa.

Trucks (Storage Battery) [For Warehouses & Industrial Plants]
 Elwell Parker Electric Co., The, New York, N. Y.

Trust Companies. [See Bankers and Brokers.]

Tubes. (Boiler.)
 Allegheny Steel Co., Pittsburgh, Pa.
 Cincinnati Iron & Steel Co., Cincinnati, O.
 National Tube Co., Pittsburgh, Pa.

Tube Well Strainers.
 Cook, A. D., Lawrenceburg, Ind.

Tubing.
 La Belle Iron Works, Steubenville, O.
 National Tube Co., Pittsburgh, Pa.
 Youngstown Sheet & Tube Co., Youngstown, O.

Turbines. (Hydraulic.)
 Allen-Chalmers Mfg. Co., Milwaukee, Wis.
 Davis Foundry & Machine Wks., Rome, Ga.
 Leffel & Co., James, Springfield, O.
 Salem Foundry & Machine Wks., Salem, Va.
 Smith Co., S. Morgan, York, Pa.

Turbines. (Steam.)
 Allen-Chalmers Mfg. Co., Milwaukee, Wis.
 General Electric Co., Schenectady, N. Y.
 Sturtevant Co., R. F., Hyde Park, Boston, Mass.
 Terry Steam Turbine Co., Hartford, Conn.
 Western Electric Co., New York, N. Y.
 Westinghouse Machine Co., Pittsburgh, Pa.

Turn Buckles.
 Broderick & Bascom Rope Co., St. Louis, Mo.

Turntables.
 American Bridge Co., New York, N. Y.
 Virginia Bridge & Iron Co., Roanoke, Va.

Twine.
 Columbian Rope Co., Auburn, N. Y.

Important Information For Advertisers in Manufacturers Record

Publication day—Every Thursday.
 Advertising copy not requiring proof must reach us one week in advance of publication day.
 When proof is required, two weeks in advance.
 Width of column, 2 1/2 inches; length, 13 inches.
 Four columns to page.

TYPOGRAPHICAL ARRANGEMENT

We desire to use, as far as possible, uniform display type and borders and avoid the use of black background cuts. The uniform border is two-point plain rule for all spaces less than a full page.
 Copy for advertisements other than those to be used in special departments should be prepared for two-column measure for spaces less than a quarter page; for a quarter page or larger, in two or four columns.

Tools. (Machinists.)
 Holland Mfg. Co., Erie, Pa.
 Morse Twist Drill & Mch. Co., New Bedford, Mass.

Tools. (Mechanical.)
 Starrett Co., L. S., Athol, Mass.

Tools. (Pneumatic.)
 Chicago Pneumatic Tool Co., Chicago, Ill.
 Independent Pneumatic Tool Co., Chicago, Ill.

Tools. (Tinner's.)
 Danzer Metal Works, Hagerstown, Md.

Torches.
 Wall Mfg. Supply Co., P., Allegheny, Pa.

Towers. (Electric Transmission.)
 American Bridge Co., of New York, N. Y.
 Scaife & Sons Co., Wm. B., Pittsburgh, Pa.

Towers. (Steel and Wood.)
 Caldwell & Co., Inc., W. E., Louisville, Ky.
 Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
 Chicago Bridge & Iron Works, Chicago, Ill.
 Cole Mfg. Co., R. D., Newnan, Ga.
 Columbia Pump & Well Co., Washington, D. C.
 Des Moines Bridge & Iron Co., Des Moines, Ia.
 Memphis Steel Const. Co., Memphis, Tenn.
 Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Track Material. (Steam & Industrial Railroads.)
 Conley Frog & Switch Co., Memphis, Tenn.
 Upson Nut Co., Cleveland, O.

Traction Engines.
 Fairbanks-Morse & Co., Atlanta, Ga.
 Heer Engine Co., Portsmouth, O.
 Holt Mfg. Co., The, Peoria, Ill.
 Huber Mfg. Co., The, Marion, O.

Tramway. (Overhead.)
 Amburn Co. (Tramway Department), New York, N. Y.
 American Steel & Wire Co., Chicago, Ill.
 Spindel, J. G., Reading, Pa.

Tramways. (Portable.)
 Amburn Co. (Tramway Department), New York, N. Y.

Tramway. (Wire Rope)
 Amburn Co. (Tramway Department), New York, N. Y.
 American Steel & Wire Co., Chicago, Ill.
 Broderick & Bascom Rope Co., St. Louis, Mo.
 Caldwell & Sons Co., H. W., Chicago, Ill.
 Link-Belt Co., Nictown (Philadelphia), Pa.
 Waterbury Co., New York, N. Y.

Unions.
 Dart Mfg. Co., E. M., Providence, R. I.
 National Tube Co., Pittsburgh, Pa.

Vacuum Cleaning Apparatus.
 King Co., F. E., Norfolk, Va.
 United Electric Co., The, Canton, O.

Valves.
 Bourbon Copper & Brass Wks. Co., Cincinnati, O.
 Columbian Iron Works, Chattanooga, Tenn.
 Frick Co., The, Waynesboro, Pa.
 Glamorgan Pipe & Fdry Co., Lynchburg, Va.
 Jenkins Bros., New York, N. Y.
 Lunkenheimer Co., The, Cincinnati, O.
 National Tube Co., Pittsburgh, Pa.
 Powell Co., Wm., Cincinnati, O.
 Pittsburgh Valve Fdry. & Const. Co., Pittsburgh, Pa.
 York Mfg. Co., York, Pa.

Valve Boxes.
 Clark Co., H. W., Mattoon, Ill.

Varnish.
 Berry Bros., Detroit, Mich.

Veneer Machines.
 Titus, E. E., Petersburg, Va.

Ventilating Apparatus. (Engineers' and Contractors.)
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 Sturtevant Co., R. F., Hyde Park, Boston, Mass.

Vises.
 Holland Mfg. Co., Erie, Pa.

Wagons. (Dump.)
 Troy Wagon Works Co., The, Troy, O.
 Western Wheeled Scraper Co., Aurora, Ill.

Wainscoting. (Tile.)
 Northcross Mantel Co., W. J., Memphis, Tenn.

Wall Coping.
 Southern Sewer Pipe Co., Birmingham, Ala.

Wall Plugs. (Galvanized.)
 Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.

Wall Tiles.
 Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.

Washers. (Ore and Phosphate.)
 Bailey-Lebby Co., Charleston, S. C.
 Cameron & Barkley Co., Charleston, S. C.
 McLanahan-Stone Mach. Co., Hollidaysburg, Pa.

Washers and Rivets. [See Bolts, Nuts, Rivets, Studs and Washers.]

Watchman's Clocks.
 Watchman's Clock & Supply Co., New York, N. Y.

Water Filters. [See Filters, Water, etc.]

Waterproofing. (For Brick Work.)
 Barrett Mfg. Co., Philadelphia, Pa.
 McCormick Waterproof Portland Cement Co., St. Louis, Mo.

Waterproofing. (For Concrete.)
 Barrett Mfg. Co., Philadelphia, Pa.
 Johns-Manville Co., H. W., New York, N. Y.
 McCormick Waterproof Portland Cement Co., St. Louis, Mo.

Water-Softening Apparatus. (Purifying.)
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 International Filter Co., Chicago, Ill.
 N. Y. Cont. Jewell Filter Co., New York, N. Y.
 Tucker & Laxton, Charlotte, N. C.

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Water-Works Construction.
 Barry-Fortune Const. Co., Eatonton, Ga.

Water-Works Supplies and Appliances.
 Allen-Scales Engineering Co., Nashville, Tenn.
 American Cast Iron Pipe Co., Birmingham, Ala.
 American Pipe & Const. Co., Philadelphia, Pa.
 Bourbon Copper & Brass Wks. Co., Cincinnati, O.
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 Coldwell-Walton Co., Newburgh, N. Y.
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 Donaldson Iron Co., Emmaus, Pa.
 Glamorgan Pipe & Foundry Co., Lynchburg, Va.
 Keystone Pump & Well Engine Co., Beaver Falls, Pa.
 Layne & Bowler Co., Houston, Tex.
 Leadite Co., Inc., The, Philadelphia, Pa.
 Lynchburg Foundry Co., Lynchburg, Va.
 Massillon Iron & Steel Co., Massillon, Ohio.
 Pomona Terra-Cotta Co., Pomona, N. C.
 Salem Fdry. & Machine Works, Salem, Va.
 Standard Cast Iron Pipe & Foundry Co., Bristol, Pa.
 Standard Spiral Pipe Works, Chicago, Ill.
 Stevens' Sons Co., H., Macon, Ga.
 U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.
 Warren Foundry & Machine Co., New York, N. Y.
 Wood & Co., R. D., Philadelphia, Pa.

Welding. (Oxy-Acetylene Process.)
 Prest-O-Lite Co., Inc., The, Indianapolis, Ind.

Welding Plants. (Oxy-Acetylene.)
 Milburn Co., Alex. N., Baltimore, Md.

Welding Apparatus. (Oxy-Acetylene Process.)
 Prest-O-Lite Co., Inc., The, Indianapolis, Ind.

Welding Supplies.
 Prest-O-Lite Co., Inc., The, Indianapolis, Ind.

Well Contractors. (Oil, Artesian, etc.)
 Columbia Pump & Well Co., Washington, D. C.
 Cook, A. D., Lawrenceburg, Ind.
 Hughes Specialty Well Drill Co., Charleston, S. C.
 Lee Bros. & Greer, Spartanburg, S. C.
 Stothoff Bros., Flemington, N. J.
 Snyder Pump & Well Co., Inc., Richmond, Va.

Well Tools and Supplies.
 Cook, A. D., Lawrenceburg, Ind.
 Keystone Pump & Well Engine Co., Beaver Falls, Pa.
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Wheels and Axles.
 Electric Wheel Co., Quincy, Ill.
 Oliver Mfg. Co., W. J., Knoxville, Tenn.

Wheelbarrows and Carts.
 Sterling Wheelbarrow Co., Milwaukee, Wis.

Window Frames and Sash. (Fireproof.)
 Detroit Steel Products Co., Detroit, Mich.
 Edwards Mfg. Co., The, Cincinnati, O.
 Voigtmann & Co., Chicago, Ill.
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Wire. (Barbed Wire, etc.)
 American Steel & Wire Co., Chicago, Ill.
 Roebbing's Sons Co., John A., Trenton, N. J.
 Youngstown Sheet & Tube Co., Youngstown, O.

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 American Steel & Wire Co., Chicago, Ill.
 Gulf States Steel Co., Birmingham, Ala.

Wire. (Galvanized Telephone.)
 American Steel & Wire Co., Chicago, Ill.
 Gulf States Steel Co., Birmingham, Ala.

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 Dufur & Co., Baltimore, Md.
 Dufur, Baggott & Co., Baltimore, Md.
 Meyers Mfg. Co., The, Fred J., Hamilton, O.
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Wire Netting.
 American Steel & Wire Co., Chicago, Ill.
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Wire Rope.
 American Steel & Wire Co., Chicago, Ill.
 Broderick & Bascom Rope Co., St. Louis, Mo.
 Roebbing's Sons Co., John A., Trenton, N. J.
 Waterbury Co., New York, N. Y.
 Youngstown Sheet & Tube Co., Youngstown, O.

Wire Rope Clips.
 American Steel & Wire Co., Chicago, Ill.
 American Hoist & Derrick Co., St. Paul, Minn.
 Broderick & Bascom Rope Co., St. Louis, Mo.

Wires and Cables. (Insulated.)
 Safety Insulated Wire & Cable Co., New York, N. Y.

Wood Blocks. (For Paving and Factory Floors.)
 U. S. Wood Preserving Co., New York, N. Y.

Wood Distillation.
 Struthers-Wells Co., Warren, Pa.

Wood Pipe. (For Water, etc.)
 Wyckoff & Son Co., A., Elmira, N. Y.

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 Barrett Mfg. Co., Phila., Pa.

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 Gibbs Mach. Co., Inc., Columbia, S. C.
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 Lane Mfg. Co., Montpelier, Vt.
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